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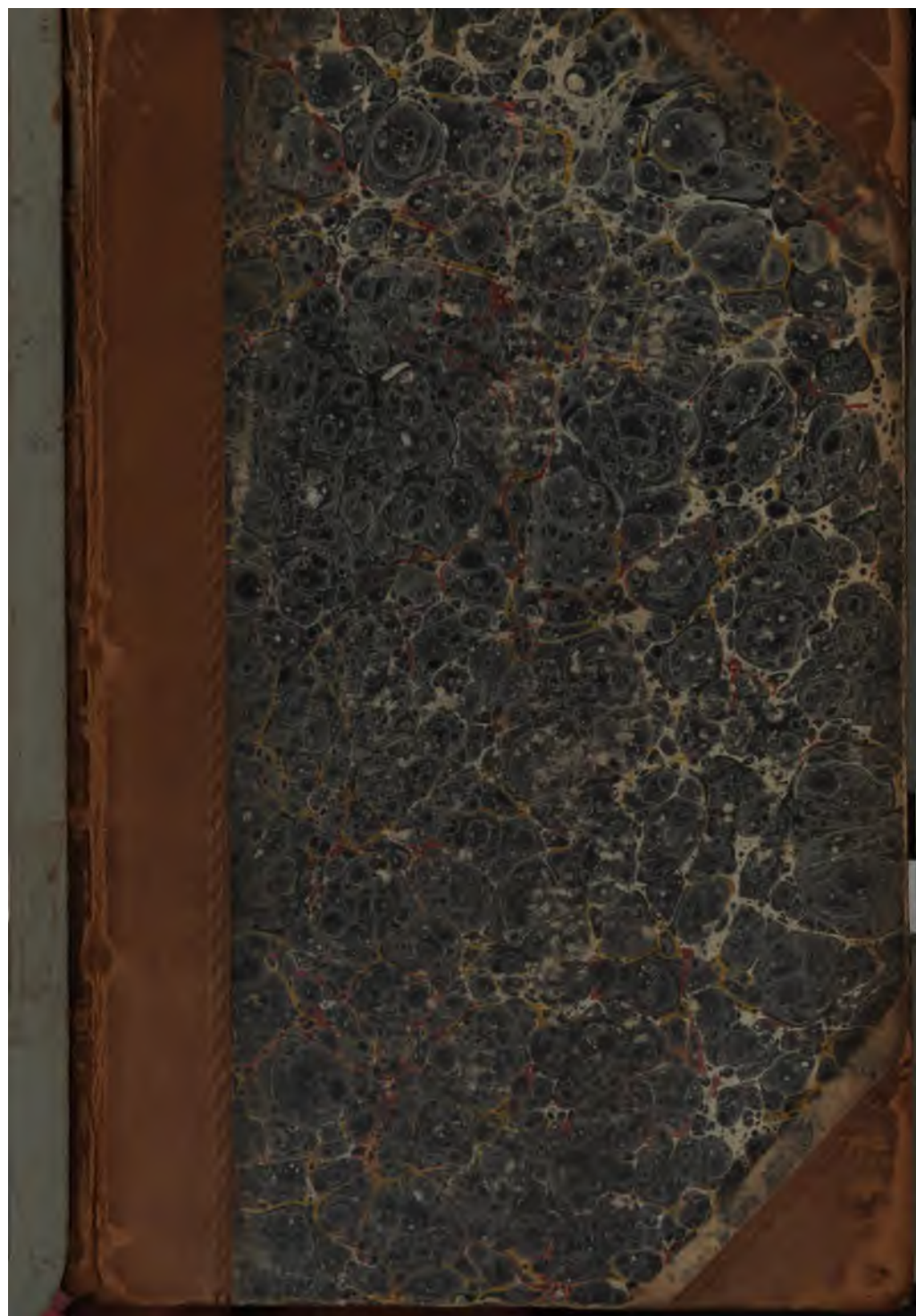
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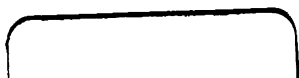




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LEA

HISTORY
OF THE
EPIDEMIC CHOLERA
OF
RUSSIA.

HISTORY

2. 5. 1831

OF THE

EPIDEMIC SPASMODIC CHOLERA

OF

R U S S I A ;

INCLUDING

**A COPIOUS ACCOUNT OF THE DISEASE WHICH HAS PREVAILED
IN INDIA, AND WHICH HAS TRAVELLED, UNDER THAT
NAME, FROM ASIA INTO EUROPE.**

ILLUSTRATED BY

NUMEROUS OFFICIAL AND OTHER DOCUMENTS,

**EXPLANATORY OF THE NATURE, TREATMENT, AND
PREVENTION OF THE MALADY.**

BY

BISSET HAWKINS, M.D.

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PHYSICIAN TO THE WESTMINSTER GENERAL DISPENSARY.**

L O N D O N :

JOHN MURRAY, ALBEMARLE-STREET.

MDCCCXXXI.

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Stamford Street.



INTRODUCTION.

THIS little work does not profess to make any discoveries respecting the disease of which it treats, but merely to collect into a convenient and ready form the scattered information which has been as yet obtained concerning a topic of universal interest. Nearly all that is to be found in its pages has been already published in various forms; but to place side by side conflicting opinions, to compare statements, and to furnish ample materials for reference and conclusion, was a task which remained to be accomplished. More information will doubtless shortly be afforded by the very

able observers who have been sent by our Government to the scene of disease ; but the public are, in the mean time, naturally anxious to judge for themselves on the facts hitherto disclosed. It is possible, but happily not very probable, that this unwelcome stranger may make its appearance on our shores more speedily and more suddenly than we have reason to anticipate ; and in such a contingency, however remote, it would be desirable that country magistrates, clergymen, and medical practitioners, residing at a distance from opportunities of information, should be enabled to possess the painful experience which has been acquired in other countries.

I am confident that the writers and journalists, of whose labours I have most fully availed myself, will feel no dissatisfaction at the liberty which I have taken. The cause is of such engrossing importance to all, that

an excuse will hardly seem necessary to them: the delicacy which would be suitable in borrowing from works of wit or of fiction would be misplaced when, in times of expected calamity, we snatch up a stone on every side to fortify our common safety. I have, in nearly every instance, quoted with care the authorities to which I have had recourse.

Marks of haste will be everywhere discernible, but this negligence, arising from a desire of satisfying the curiosity of the public, will not be found, I trust, to affect the evidence of the facts, but only to tarnish the quality of the composition. A want of order will be found which future writers may easily supply at their leisure.

Four maps have been published, illustrative of the course of the disease; one is attached to the Report of Mr. Scot on the Indian Epidemic, another is in the German

work of Schnurrer, and a third is in the number of the Englishman's Magazine for May last. I have profited largely by the last, which, with the essays which it accompanies, is, I believe, the work of Mr. Kennedy. The latest is in the new work of Moreau de Jonnés.

The public cannot be too earnestly cautioned against lending an eager ear to the imaginary cases which have been attempted to be fastened on their attention, and which will probably be abundantly supplied, from time to time, in order to pamper a luxurious appetite for the terrible. Many cases of the *ordinary bilious* cholera will occur, as happens generally in the summer and autumn*, but which have no identity with the Epidemic Spasmodic Cholera, and are seldom dangerous.

* 'As certainly (says Sydenham) as swallows in the spring, or cuckoos about the dog-days.'

No worse preparation can be made for disease, in the event of its arrival, than a premature panic. Our Government has used every prudent precaution for the possible calamity, by Quarantine regulations directed against both persons and merchandise, by establishing a Board of Health, hospital ships, and local committees, at the principal points*. This timely foresight, combined with the greater degree of individual prosperity and competence, with the habits of neatness and cleanliness, and with the singular benevolence towards distress which characterize our country, may probably avert the evil, and most certainly will greatly mitigate its severity. The affluent, the elevated in rank, and the intelligent, have little to fear for themselves, if they

* Sir James Macgregor has also sent a circular to the assistant-surgeons of the army, on half-pay, requesting those gentlemen to hold themselves in readiness in case their services should be requisite.

are only zealous, as they have ever been, in providing for those whom poverty and carelessness will predispose to imbibe, and afterwards to propagate the disease.

Golden Square, July 12th, 1831.

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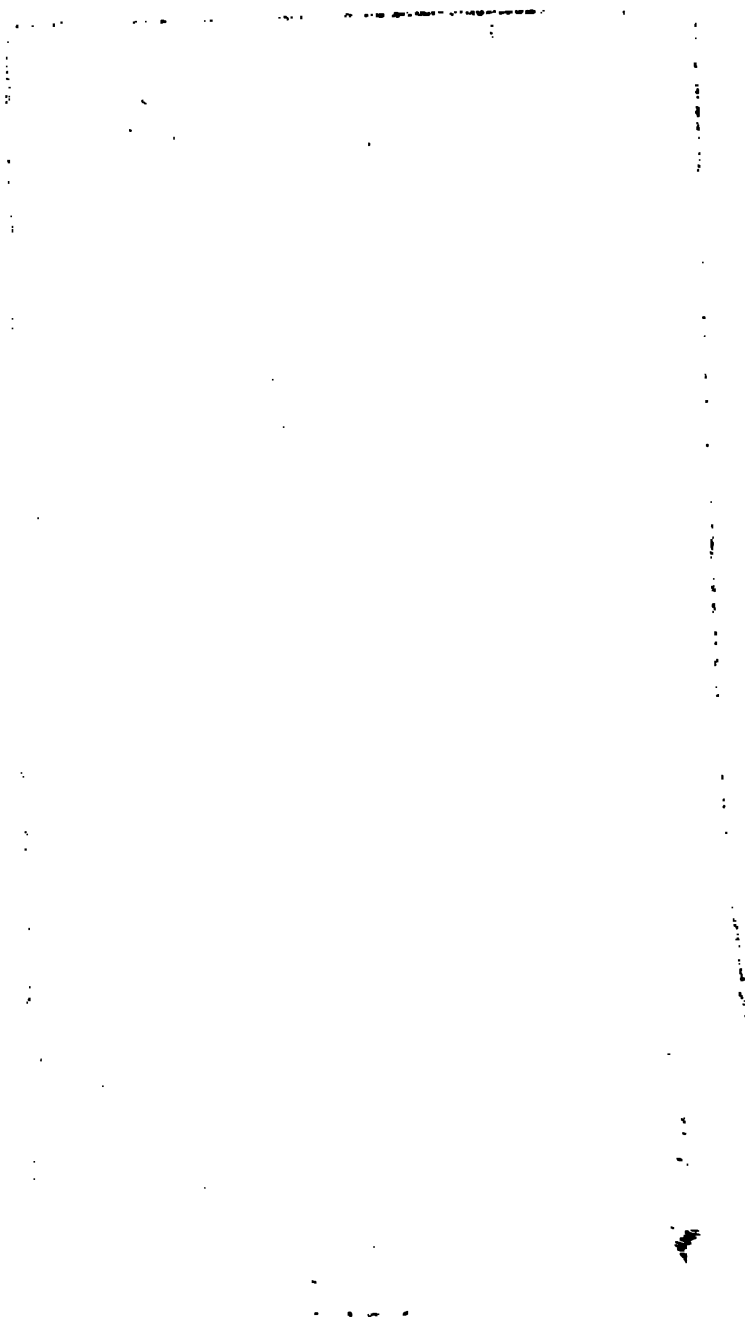
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MAP
of the Course of the
EPIDEMIC CHOLERA,
from 1817 to 1834.

AFRICA

U.S. Walker Realigns!

CHOLERA MORBUS,

&c.

CHAPTER I.

Account of the Regulations issued, and of the Measures adopted by the Russian Government, to check the progress of Cholera, and to protect individuals.

THE Cholera began to inspire fear at Moscow towards the end of the summer of 1830. At that time the appearance of this formidable stranger at the fair of Nijni-Novgorod became known at Moscow. The Prince Galitzin, the military governor-general of Moscow, immediately established quarantines at the limits of his government, and at the barriers of the city, and no one was suffered to enter without having previously undergone fumigations. He assembled daily

around him all the most eminent individuals in the city to confer on measures of public safety. There are twenty quarters (or parishes) at Moscow, and over each of these was appointed a temporary chief, who corresponded directly with the government, and who himself selected for his assistance a certain number of persons inhabiting his quarter. In every quarter a temporary hospital was established, the medical service of which, as well as of that quarter, was intrusted to an inspecting physician, under whose orders other medical men and medical pupils of the University and of the Imperial Academy were distributed. These inspecting physicians formed a temporary medical council, which held its sittings daily. Succour was promptly afforded at every house under their directions. Every proprietor of a house was strictly enjoined to communicate instantly to the police the least suspicion of the manifestation of

this disease, whose symptoms had been already published for the information of all. Carriages were provided in every quarter for the immediate transport of the sick to the hospitals. The authorities and citizens of Moscow appear to have devoted themselves to the perfecting these arrangements with the utmost zeal and discretion : in two weeks the whole detail of administration was complete, and scarcely was it completed, when, on the 15th of September, the dreaded disease disclosed itself, and an individual of the lower class died of it.

In the *Abeille du Nord* are contained the following precautionary regulations against the invasion of Cholera, prescribed by the Russian government to the inhabitants of Nijni-Novgorod.

1. To avoid sudden chills as much as

possible, and on account of the bad weather at this time of the year, to take care to be more warmly clad, and more attentive to the strength of shoes and stockings : to change instantly the clothes which have been wetted by the rain, and to keep the feet always dry.

2. Never to sleep in the open air, by day or by night, and particularly not on damp ground.

3. Not to load the stomach with too large a quantity of food, and especially of indigestible food. It is rigorously prohibited, accordingly, to eat apples, plums, melons, water-melons, cucumbers, raw turnips, carrots, mushrooms, and other vegetables of the same sort.

4. To make as little use as possible of strong drinks, and of a heating diet, and particularly to abstain from garlic.

5. To take the greatest care to keep the body very clean, to change the linen as often

as possible, and to maintain the utmost cleanliness not only in the apartments, but also in the courts and the streets.

6. Never to leave the air pent up in apartments: for this purpose the windows must be opened when the weather is fine; and during rainy and damp weather the stoves must be warmed, and the room perfumed with vinegar and spirit of juniper.

7. Never to go out in the morning with an empty stomach, and not to fatigue oneself to exhaustion by daily labours.

8. As soon as any one is found in the house attacked with symptoms announcing the cholera, all individuals are charged to give immediate information at the police-office of the quarter, where a medical man will be found always ready to afford succour to the sick: any master of a house, who may fail

to give immediate information, will incur a heavy responsibility.

9. While awaiting the arrival of the medical officer, the sick person must, if possible, be transported into a separate chamber, which will be often perfumed with vinegar and spirit of juniper: in order to be more safe, the hands should be carefully washed with vinegar every time after touching the sick, or any article that he has used.

10. If it happens that the sick person dies, from not having received assistance in proper time, his linen and his bed must be carefully washed, and aired, at least four days before being again made use of. The body must never be interred before twenty-four hours have elapsed from the time of his decease.

11. If the medical officer thinks proper to transport the sick person to the hospital, in order that he may receive more attention,

and that the progress of his malady may be better observed, no remuneration shall be demanded for the care, nor for the medicines administered to the poorer inhabitants.

12. The authorities of the government of Nijni-Novgorod, founding their confidence on the assurances given them by medical men, who have carefully examined the progress of the disorder which has shown itself in this city, inform the citizens with certainty, that they will be preserved from its attacks, if they conform themselves exactly to the directions above laid down, and if they call in the aid of the physician at the first moment of the appearance of the evil. A very important means of safety is to repress all tendency to depression or chagrin, and to preserve, on the contrary, a cheerfulness and tranquillity of mind.

CHAPTER II.

*Preservative Regimen recommended in India against
an attack of Epidemic Cholera*.*

UNDER this head may be comprehended the general injunction of avoiding the predisposing and exciting causes of the disease. Whatever tends, directly or indirectly, to debilitate or fatigue the system ; whatever lowers its vital energy—as excesses of every description—disposes to the operation of the efficient cause of the malady. On the other hand, I am fully persuaded, that whatever tends to preserve this energy, serves to render the system impregnable to its operations.

Exposure to cold, to chills, to the night-dew, and to wet and moisture, ought care-

* From the work of Annesley on the Diseases of India. Second Edition. 8vo. 1829.

fully to be avoided ; and if at any time these exposures are inevitable, the system should be fortified against their effects : but the mode of fortifying the system requires consideration. This should not be attempted, unless better means are not within reach, by wines or spirits ; these generally leave the system, as soon as their stimulating effects have passed off, more exposed than before to the invasion of disease. Permanent tonics, however, and those more especially which determine to the surface of the body, at the same time that they improve the tone of the digestive viscera, and promote the regular functions of the bowels and biliary organs, may be resorted to on such occasions. For this purpose, infusion or decoction of bark, or of calumba, may be taken with the spiritus Mindereri, or any warm stomachic ; or the powdered bark may be exhibited, combined with the spicy aromatics. The same medicinal means may be also at-

tended to, whenever the disease prevails at the place where the individual resides, and should be put in practice when he retires to sleep, and as soon as he rises in the morning, before he leaves his apartment. He should avoid, also, sleeping in low and ill-ventilated apartments; and be equally distrustful of sleeping near, or even of passing through, in the night time, marshy or swampy districts. If, however, these latter precautions cannot be taken, the medicinal means already suggested should be adopted.

The bowels should be attended to, and their functions regulated; but in no case should this be attempted by debilitating purgatives, or by salts. The warm stomachic laxatives, and these combined with tonics, may be adopted with advantage, as occasion may require. The surface of the body should be kept in a warm perspirable state; but excessive perspirations must be avoided.

The diet should be regular, moderate, and easy of digestion. Whilst low living ought to be shunned, its opposite should never be indulged in. The stomach ought to have no more to do than what it can perfectly accomplish, without fatigue to itself, and to the promotion of its own energies. It must never be roused to a state of false energy, by means of palatable excitants, or weakened by distending it with too copious draughts of weak diluents.

The state of the mind ought to be regulated in such a manner, as not to be excited much above, or lowered beneath, its usual tenour. The imagination should not be allowed, for a moment, to dwell upon the painful considerations which the disease is calculated to bring before the mind; and least of all ought the dread of it to be encouraged. There is a moral courage, which is possessed by individuals who are even the weakest, perhaps, as

respects physical powers, and which in them resists more efficiently the causes of intertropical diseases, than the bodily powers of the strongest, who are not similarly endowed with this species of mental energy.

Those who dread not the attack of disease, more especially of epidemic disease, and who yet possess sufficient prudence to avoid unnecessary exposure to their predisposing and exciting causes, may generally be considered as subjected to comparatively little risk from them. This, I am persuaded, is particularly the case as respects epidemic Cholera, and I wish to impress it upon the minds of those whom the observation concerns.

CHAPTER III.

Official Regulations issued by the Austrian Government for the purpose of repelling the approach of the Disease, and of controlling it in case of its arrival.

THESE are very copious, and are drawn up in a manner suitable to popular circulation.

The first clause states the necessity of precautions on account of the strong evidence of the contagious character of the disease.

The second enjoins a quarantine on vessels coming from suspected ports of Russia, and a cordon on the confines towards Russia. The authorities and the medical practitioners are strongly enjoined to watch over the state of public health with the greatest care, and to notify to the government any case which may afford suspicion of the existence of the disorder. All correspondence

with Russia is to be subjected to the same treatment which letters undergo arriving from countries notoriously afflicted with the plague.

The third presents the means proposed for checking the propagation of the disease, in case it should manifest itself on the Austrian confines. An ample history of the symptoms is first given for the information of all classes, in order that its presence may be more readily recognized. It is earnestly recommended to lose not a moment in applying for medical aid, as all who have seen the disease admit that the only hope of relief depends on a *prompt* application of remedies. Concealment of a case will incur the most severe penalties. The same separation, or insulation of the sick, is enjoined, which is practised during the prevalence of the plague, and the prophylactic measures employed during the plague are to be here carried into operation in

order to prevent every communication with infected persons or effects.

The principal circumstances which encourage the development of Cholera are a damp atmosphere, a moist or close habitation, constipation, excessive application of the body and the mind, bad nourishment, intemperance, depression of mind, the want of clothing suitable to keep out the cold, and every thing which enfeebles the strength. The disease develops itself more easily in soils marshy, low, and subject to inundations, and is more destructive in such situations than in plains, elevated and mountainous districts. It will be the duty, accordingly, of the civil and medical authorities to labour to mitigate or obviate such prejudicial influences. The houses destined to revive the sick are most suitable to that purpose when placed on a height : they must not be crowded with patients, in order that neither the sick nor their attendants

may suffer from bad air. The greatest cleanliness, and the most careful ventilation, must be observed in the Infirmarys. When it is cold, an artificial temperature of about 15° of Reaumur must be maintained. At least twice in the day fumigation must be practised with vinegar, and still preferably with chlorine, according to the plan of Guyton Morveau.*

The diet should be wholesome, nutritive, and of easy digestion. A moderate use of condiments is recommended, but all unripe and watery fruits are dissuaded. Every thing which passes readily into fermentation, and indigestible, should be avoided, as beer, hydromel, sour soups, mushrooms, salted and spoiled fish, greasy food. A little brandy or liqueur is wholesome, especially when prepared with cummin, with anise-seed, with juniper berries, &c.; and a glass of wine should be taken in the day. On the other hand, excess in spirits

* See Chapter IV.

and in heating food is most injurious. Every repletion of stomach, whether from food or drink, and particularly at supper, is highly dangerous. The authorities are to watch rigorously over taverns, inns, and provision-houses, and are particularly to ascertain the good quality of *bread*.

No one should sleep in the open air, and least of all, in the night-time: nor should any one go out after sleeping without being warmly clothed. Flannel next the skin, or a cloak, dry feet, and morning and evening frictions of the body with warm cloths, are strongly recommended.

The clergymen of the place should continually endeavour to inspire confidence in Divine Providence, and to tranquillize and strengthen the mind.

The medical officers and nurses should never enter upon their duties fasting, nor

without having taken some spirituous drink. They should avoid, as much as possible, inspiring the air immediately surrounding the sick. Ablutions are to be practised with vinegar, chloride of lime, eau de Cologne, &c., and the clothes are to be changed and fumigated after the visit. Dissections must be practised only with extreme caution, and never until the body has been well sprinkled with chloride of lime.

Every measure prescribed for extirpating the contagion of the plague, such as the purification and destruction of infected or strongly suspected objects, and the treatment of infected persons and houses, is to be practised here.

The fourth clause embraces a distinct detail of the treatment applicable to the different stages of the disorder;—and attached to the whole is a more lengthened and sci-

entific history of the disease, for the purposes of more thoroughly informing medical practitioners. We shall make use of this epitome in other parts of our work.

CHAPTER IV.

On the Preservative Effects of Fumigations.

ALTHOUGH it will be easy to employ these, and very desirable to procure even the most minute advantage that can be derived from such means, the observations of those who have witnessed the disease in Russia are not very promising. Such agents will extinguish a bad smell, by presenting one of a stronger or more agreeable kind, or they may even, to a certain extent, purify the atmosphere, but we have no reason to believe, as yet, that they can intercept the passage of contagion (in what way soever the contagion may be conveyed) from one individual to another. A free ventilation will probably be found everywhere more useful, both to the

public at large, to the sick, and to their attendants.

The *Chlorides of Lime* and *Soda**, first brought into use by Labarraque, will naturally suggest themselves. Labarraque lately read at the Academy of Medicine at Paris, a letter addressed by Mr. de Kartzoff, a chemist at Moscow, to himself, in which Mr. de K. states, that by the use of them he had preserved his own house, and thirty persons who inhabit it, from the entrance of the disease, at a time when they were keeping up a frequent intercourse with their neighbours. He endeavoured to persuade the authorities of Moscow to adopt the chlorides in preference to the fumigations of spirit of juniper and burnt litter†. His representations were, however, unsuccessful.

Labarraque added to this communication a fact which had come to his own know-

* These are sold ready for use in the druggists' shops.

† Genièvre et fumier brûlé.

ledge. A vessel from Bourdeaux remained four months in the port of Calcutta, in the midst of several other vessels, which had been decimated by the Cholera,—but the whole of its crew escaped uninfected, through the precaution of sprinkling with water impregnated with the chlorides.

Dr. Albers, who was sent to Russia at the head of a medical commission, by the Prussian Government, states, in his report, that fumigations of vinegar and of chlorine had an ample trial, but appeared to be useless: chlorine was worse than useless, as, when employed in excess, it seemed to do harm. He remarks, that at the very time when the hospital was filled with the clouds of chlorine, the largest proportion of the attendants was attacked.

Dr. Albers makes an important observation, that the number was much diminished when free ventilation alone was employed.

Sir William Crichton, of St. Petersburg,

in a letter which has been widely read, declares, that fumigations with chlorine * have been generally used, but that no positive result in favour of their employment has been derived.

Mr. Joehnnichen, member of the temporary Medical Council of Moscow, has also addressed a letter to the Academy of Sciences

* Chlorine, in its gaseous form, has been often employed, on former occasions, as a fumigation for neutralizing putrid miasmata, and correcting the infectious atmosphere of hospital wards and rooms, in which have been cases of contagious fevers. For these purposes it is better adapted than the common muriatic acid gas; but as both of them are highly deleterious to animal life, they should be employed in such apartments only as the sick can be removed from while the gas is extricated. The chlorine is easily procured by pouring f3vj of strong sulphuric acid on a mixture of ziv. of pulverized manganese, and zviiij. of dried common salt, in a china cup. The doors of the room to be fumigated must be kept shut for two hours after the cup with this charge is placed in it; then be thrown open and a free current of air permitted to pass through the apartment. By this process the offensive odour of the sick room is destroyed, the chemical constitution of the deleterious atmosphere altered, and its freshness completely restored.—Thomson's London Dispensatory, 3d ed. p. 574.

at Paris, in which he declares, that none of the supposed disinfecting agents have any influence at all over the developement of the disease,—neither chlorine nor the chlorides. He affirms that the chlorides were extensively used both in the cottage and in the palace, but that the disease everywhere sprang up in the midst of their exhalations.

CHAPTER V.

Quarantine in Russia.

WHILST engaged in treating of the means to be adopted for the prevention of the disease, we shall present our readers with the quarantine orders very recently promulgated by the Russian government.

‘ St. Petersburg, June 12, 1831.

‘ All vessels arriving at Cronstadt from
‘ any of the ports of the three Baltic govern-
‘ ments, must bring with them clean bills of
‘ health, &c. ; still they will be placed under
‘ observation for eighteen days, and, in case
‘ of necessity, under quarantine.

‘ As to St. Petersburg itself, in addition to
‘ the hospital prepared last year, and the
‘ quarantine at Borowitch and Narva, and
‘ the cordon from this latter place to the sea,

‘ medical officers will be placed on the guard-
‘ ships, for the purpose of examining the
‘ crews of all vessels coming from Cronstadt ;
‘ besides which medical officers will make the
‘ round of all the wharfs at which goods are
‘ landed, and those at which the barque stop,
‘ as well as those of the Custom-house, in
‘ order to ascertain the state of health of the
‘ crews, as well as the labourers.

‘ Some doubtful cases have, indeed, mani-
‘ fested themselves amongst the labourers on
‘ board the barques at Rybinsk and Arch-
‘ angel, where, however, proper measures
‘ have been taken ; but should these, as is
‘ possible, eventually prove to be Cholera,
‘ no precautions have been omitted for the
‘ protection of St. Petersburg. Not only
‘ have orders long since been given to exa-
‘ mine and purify the barques, in case of ne-
‘ cessity, but, by order of his Imperial Majesty,
‘ officers and physicians have been sent to

‘ meet them. All ships from Dantzic are to
‘ be kept under quarantine below the guard-
‘ ship for fourteen days. If no sick are found
‘ on board, and no deaths have occurred
‘ during the voyage, the ships, after the above
‘ term, are allowed to pratique, after having
‘ been fumigated.

‘ With respect to Cronstadt, the following
‘ are the last orders given to Admiral Rage-
‘ noff, in addition to what he had previously
‘ received :—

‘ All vessels coming from the south and
‘ western shores of the Baltic are to be
‘ questioned with the greatest strictness, and
‘ if on the passage there were any sick or
‘ deaths on board, the ships, before entering
‘ the harbour, are to be strictly examined,
‘ and, in case of suspicion, to be kept under
‘ quarantine.

‘ Orders are given to the Custom-house to
‘ double the vigilance of the shore guard,

‘ that not the slightest intercourse should take
‘ place between the ships under quarantine
‘ and the island of Cronstadt.

‘ Light cruisers will be appointed to assist
‘ the guard-ships.

‘ Every ship not admitted to pratique must
‘ hoist a yellow quarantine flag on board
‘ whilst under observation ; and if the ship
‘ has no yellow flag on board, she will be
‘ provided with one.

‘ In case the Cholera shews itself on board
‘ any vessel arriving at Cronstadt, a lazaretto,
‘ surrounded by a cordon of troops, is to be
‘ established in the island of Tolbuchen.

‘ In addition to any other measures of a
‘ local nature, which the Custom-house at
‘ Cronstadt is enjoined to enforce, physicians
‘ are charged with the daily examination of
‘ the crew of each vessel, and, in case of
‘ Cholera being discovered on board any
‘ vessel, she will be placed under quarantine.’

CHAPTER VI.

Early History of the Spasmodic Cholera of India.

CHOLERA has been supposed to be described in the medical writings of the Hindoos, some of which are of great antiquity, as may be inferred from their being attributed to Dhanwantari, a mythological personage, coinciding in character with the Esculapius of the Greeks. In a work of this author, styled the Chintamani, the disease resembling the Cholera is classed under the generic term, Sannipata, which includes all paralytic and spasmodic affections. The species of Sannipata, supposed to be the spasmodic, or epidemic Cholera, is called Sitanga, and is thus described. ‘ Chilliness, like the coldness of the moon, over the whole body, cough, and difficulty of breathing, hiccup,

‘pains all over the body, vomiting, thirst, fainting, great looseness of the bowels, trembling of the limbs.’ Cholera is supposed by others to be classed under the generic term, *Ajerna*, or *Dyspepsia*. The species which is considered to correspond with the spasmodic, or epidemic Cholera, is called *Vidhuma Vishúchi*, and is thus described: ‘The *Vishúchi* is most rapid in its effects; its symptoms are, dimness of sight in both eyes, perspiration, sudden swooning, loss of understanding, derangement of the external and internal senses, pains in the knees and calves of the legs, griping pains in the belly, extreme thirst, lowness of the bilious and windy pulses, and coldness in the hands, feet, and the whole body.’ The first of these descriptions would apply more perfectly to the epidemic Cholera, were it not that, in a commentary thereon, in a Tamil work, styled the *Yugumani Chin-*

tamani, the Sitanga is stated to be incurable, and fatal in fifteen days. The latter description is, perhaps, less applicable, as not noticing either vomiting or purging amongst the symptoms. An attempt has been made to reconcile these two opinions, by supposing that the Vishúchi is, in fact, the Sitanga in a more virulent or epidemic form, but it is not contended that the Vishúchi itself is always epidemic; on the contrary, it is said to be by no means uncommon, and to be described in these familiar, but emphatic words: 'Being seized with vomiting and purging, he immediately died.' These observations are drawn from a letter which appeared in the Madras Courier, dated 2nd January, 1819, and which was very generally attributed to the pen of a gentleman well known for his partiality to, and deep knowledge of, Hindoo literature.

The Dutch physician, Bontius, who wrote

in the year 1629 at Batavia, thus describes Cholera Morbus. ‘ Besides the diseases
‘ above treated of as endemic in this country,
‘ the Cholera Morbus is extremely frequent ;
‘ in the cholera, hot bilious matter, irritating
‘ the stomach and intestines, is incessantly
‘ and copiously discharged by the mouth and
‘ anus. It is a disorder of the most acute
‘ kind, and, therefore, requires immediate ap-
‘ plication. The principal cause of it, next to
‘ a hot and moist disposition of the air, is
‘ an intemperate indulgence of eating fruits,
‘ which, as they are generally green, and ob-
‘ noxious to putrefaction, irritate and oppress
‘ the stomach by their superfluous humidity,
‘ and produce æruginous bile. The Cholera
‘ might, with some degree of reason, be rec-
‘ koned a salutary excretion, since such hu-
‘ mours are discharged in it, as, if retained,
‘ would prove prejudicial. However, as by
‘ such excessive purgations, the *animal spirits*

*' are exhausted, and the heart, the fountain
' of heat and life, is overwhelmed with putrid
' effluvia ; those who are seized with this dis-
' order generally die, and that so quickly, as
' in the space of four and twenty hours at
' most.*

*' Such, among others, was the fate of
' Cornelius Van Royen, steward of the hos-
' pital of the sick, who, being in perfect health
' at six in the evening, was suddenly seized
' with the Cholera, and expired in terrible
' agony and convulsions before twelve o'clock
' at night, the violence and rapidity of the
' disorder surmounting the force of every
' remedy. But if the patient should survive
' the period above mentioned, there is great
' hope of performing a cure.*

*' This disease is attended with a weak
' pulse, difficult respiration, and coldness of
' the extreme parts ; to which are joined,
' great internal heat, insatiable thirst, per-*

*'petual watching, and restless and incessant
'tossing of the body. If, together with these
'symptoms, a cold and fetid sweat should
'break forth, it is certain that death is at
'hand.'*

In speaking of Cholera, Bontius nowhere mentions the *colour* of the matters evacuated. Still in his description of Cholera, where *'the heart is overwhelmed,'* where *'those, who are seized with the disease generally die,'* and that within twenty-four hours at most; and in his enumeration of symptoms, as marked in italics, every one, familiar with the epidemic Cholera as it has prevailed in this country, will probably admit that he has truly portrayed that disease, and no other.

The next notice, in point of time, which we find of Cholera, is in the copy of a letter written by Dr. Paisley, at Madras, dated 12th February, 1774, as given by Curtis, in his publication on the diseases of India.

Dr. Paisley says, ' I am favoured with
' yours, and am very happy to hear that you
' have caused the army to change its ground,
' for there can be no doubt, from the circum-
' stances you have mentioned, that their si-
' tuation contributes to the frequency and
' violence of the attacks of this dangerous
' disease, which is, as you have observed, a
' true Cholera Morbus, the same they had at
' Trincomalee. It is often epidemic among
' the blacks, whom it destroys quickly, as
' their relaxed habits cannot support the
' effects of sudden evacuations, nor the more
' powerful operation of diseased bile.

' During the first campaign in this country,
' the same disease was horridly fatal to the
' blacks, and fifty Europeans of the line were
' seized with it. I have met with many single
' cases since, and many of them fatal or dan-
' gerous, of different kinds, arising from pu-
' trid bile, being disturbed by accidental

‘ causes, or by emetics, or purgatives exhibited
‘ before it had been blunted or corrected.’

Dr. Paisley does not give any particular description of the disease, and, though he dwells much on the putridity and acrimony of the bile, he does not allude to the colour or appearance of the evacuations. He observes, that ‘ when it (the Cholera) is epidemic here, it is totally a disease of highly
‘ putrid bile, which operates on the system
‘ as poison, and brings on *sudden prostration*
‘ *of strength, and spasms over the whole surface of the body.*’ ‘ In relaxed habits, when
‘ the *pulse sinks suddenly*, and brings on
‘ immediate danger, the same method must
‘ be pursued, but with more caution.’ The letter is quoted by Curtis, as referring to the Cholera Morbus, or Mort de Chien; and these extracts will probably be deemed sufficient evidence of the correctness of the reference.

It is highly important to remark, that Dr. Paisley here speaks of the disease as being ‘often epidemic’—that it prevailed in that form in the ‘first campaign,’ and affected both the Europeans and natives. The particular periods here alluded to are not known ; but we have seen, by the extract from the records of the Medical Board, that Cholera raged as an endemic in 1769 or 1770.

It appears from the report of a committee of British medical officers at the Mauritius, which was assembled in the month of November 1819, under the authority of the government, in order to examine into the nature of the epidemic disease, which then prevailed at that island, that the epidemic Cholera was not unknown there. The following is an extract from the report:—‘The committee request to say, that they have not, either in this island, or elsewhere, met with a disease possessing the characters of

‘ that which now prevails ; but that, from the
‘ report of several individuals, some of whom
‘ belong to the medical profession, it does
‘ appear, that a disease, most strongly re-
‘ sembling in its symptoms, progress, and
‘ termination that now under consideration,
‘ did for some time prevail in this colony in
‘ the year 1775.’

Cholera appears to have manifested itself pretty extensively as an epidemic in 1781 : its appearance on this occasion is thus noticed in the report on Cholera by Mr. Jameson, Secretary to the Calcutta Medical Board. A division of Bengal troops, consisting of about five thousand men, was proceeding under the command of Colonel Pearse of the artillery in the spring of 1781, to join Sir Eyre Coote’s army on the coast. It would appear that a disease resembling Cholera had been prevalent in that part of the country (the Northern Circars) some time before their

arrival ; and that they got it at Ganjam on the 22d of March. It assailed them with almost inconceivable fury. Men previously in perfect health dropped down by dozens ; and those even less severely affected were generally dead or past recovery within less than an hour. The spasms of the extremities and trunk were dreadful ; and distressing vomiting and purging were present in all. Besides those who died, above five hundred were admitted into hospital on that day. On the two following days, the disease continued unabated, and more than one-half of the army was now ill. In a note, it is added, ' The occurrence of the disease on this occasion is noticed in a letter dated 27th April, 1781, from the Supreme Government to the Court of Directors ; and the destruction which it caused in this detachment mentioned in terms of becoming regret.'

From this period, up to the year 1787,

and perhaps even to 1790, the Cholera would appear to have existed epidemically in various parts of India. Curtis states, that the fleet in which he served joined Sir Edward Hughes's squadron at Madras in the beginning of 1782; in May of that year, his ship, the Seahorse, arrived at Trincomalee, and he says, 'the *mort de chien*, or cramp, I was also informed by the attending surgeon, had been very frequent and fatal among the seamen, both at the hospital, and in some of the ships, particularly in the Hero and Superb.' The Seahorse had no case of the disease till the 21st of June, when between that day and the 25th they had eight cases.

It is also noticed in the Bengal report, that in the month of April 1783, Cholera destroyed above twenty thousand people assembled on occasion of a festival at Hurdwar; but it is said not to have extended to the

neighbouring country. All these authorities would seem accordingly to establish the fact of the prevalence of Cholera in India ; and especially of its existence during the period extending from 1769-70 to 1787, when we find the first notice of the disease in the records of the office of Madras.

In the autumn of 1787, an epidemic Cholera prevailed at Arcot, in the East Indies, of which Mr. Duffin gives the following account in a letter to Dr. Anderson, the physician general :—

‘ The moist and warm atmosphere so prevalent, all the month of September in the day time, and the thick fogs which rose every evening, with putrid exhalations from filth, which shamefully abounded at Arcot, attended towards morning with cold heavy dews, which check perspiration, doubtless all tended to bring on an irregularity and putrescency of the different secretions ; and as bad

‘ air has a great influence on the stomach and
‘ intestines, it generally occasions a loathing
‘ and indigestion. Excesses, therefore, of either
‘ eating or drinking, or undue mixtures in the
‘ stomach, will often bring on the Cholera in
‘ such a situation. That the private men and
‘ natives are more subject to the disease from
‘ their mode of living than the officers, whose
‘ diet and lodging are better, is very evident ;
‘ yet such has been the noxious quality of the
‘ air at Arcot, that we have fatal experience
‘ of every precaution being insufficient to
‘ exempt from the infection. The removal,
‘ therefore, of both sick and well from the
‘ deleterious miasmata became the first object,
‘ and which I recommended to be done when
‘ I visited the place. The symptoms were
‘ generally pretty much the same in all I have
‘ seen ; only, the violence of the spasms was
‘ greater, according to the stamina of the
‘ patient, and the quantity of putrid matter in

‘ the *primæ viæ*. They generally are seized
‘ with a nausea, frequent heats and chills, a
‘ dryness of the skin, and numbness, and un-
‘ common sensation, as they express it, in
‘ different parts of their body. Then come on
‘ cold sweats, severe gripings, and mostly a
‘ purging of bilious colluvies, appearing often
‘ in a ferment like yeast, and not unlike it in
‘ colour, with a putrid offensive smell ; retch-
‘ ings to vomit, often bilious, and at other
‘ times scarce any thing is brought up but the
‘ liquor that is drunk ; an intense thirst, op-
‘ pression on the præcordia, with difficulty in
‘ breathing. Frequently the spasms begin with
‘ the first attack, though sometimes they only
‘ appear as the disease advances, and then
‘ generally affect the lower extremities ; after-
‘ wards the abdominal muscles and the whole
‘ system become convulsed ; the pulse from
‘ the first sinks, and at times is scarcely to be
‘ felt ; profuse clammy cold sweats, and a

‘ pallid hue overspread the body, the countenance ghastly, the eyes sunk, and the voice scarcely to be heard,—with great dejection. The tongue in general moist, till near the close of the disease, when it becomes dry and foul, and the breath offensive ; the urine generally pale, and in small quantity.

‘ The severe gripings and putrid evacuations show a morbid matter in the intestinal canal, which nature is struggling to get rid of ; and till it is evacuated, antispasmodics and cordials can be of little use, farther than supporting the patient during the operation of the purge ; as a cordial, therefore, warm wine is all that I found necessary. The hot baths are of the most essential use ; with partial frictions and fomentations, and pots of boiling water placed under the cots ; purging glysters are also very necessary.

‘ Traces of the prevalence of the spasmodic Cholera, or of diseases bearing some re-

‘semblance to it, are occasionally to be found
 ‘in the reports of medical officers; but its
 ‘wider ravages in an epidemic form, and
 ‘its melancholy celebrity as a disease, do not
 ‘begin before the year 1817, at which period
 ‘we shall resume our history of the disease in
 ‘a future chapter. We are indebted for the
 ‘whole of the present one to the labours of
 ‘Mr. Scot, surgeon and secretary to the
 ‘Madras Medical Board, who has drawn up
 ‘an extensive, well-digested, and most in-
 ‘structive report of the epidemic Cholera, as
 ‘it appeared in the territories subject to the
 ‘presidency of Fort St. George*.’

* Printed at Madras, in folio, in 1824, at the expense of the East India Company, whose encouragement of science and literature is truly remarkable.

CHAPTER VII.

The Symptoms, Appearances after Death, Mortality, and Treatment of the Epidemic Cholera of India since 1817.

HAVING given a sketch of the early traces of the disease, we shall proceed to describe the symptoms by which it was characterized, and the method of cure adopted, in the more fatal form and more extensive range which it began to assume in 1817. It is generally admitted that no marked peculiarity of the weather was observed previously to its appearance ; and it does not appear to have been at all affected in its severity or progress by the circumstances of season, temperature, or moisture. It was observed to have prevailed with equal violence when the thermometer was at 40° or 50°, as when it stood at 90° or 100°,—

during the prevalence of incessant rains for months, and when the face of the earth was scorched by long continued heat and drought. The disease was very uniform in its principal features, and attacked almost indiscriminately people of all nations, and constitutions—both Europeans and natives. These circumstances, as well as some striking features of the disease, induced the Board of Bombay to consider the name of Cholera Morbus as inapplicable, which we believe to be a general opinion. In the following extract from the report of the Medical Board of Bengal, this severe disease, as it presented itself in its most violent form, is thus described :—

‘ The attack was generally ushered in by
 ‘ sense of weakness, trembling, giddiness, nau-
 ‘ sea, violent retching, vomiting, and purging of
 ‘ a watery, starchy, whey coloured or greenish
 ‘ fluid. These symptoms were accompanied,

‘ or quickly followed, by severe cramps ; ge-
‘ nerally beginning in the fingers and toes,
‘ and thence extending to the wrists and fore
‘ arms, calves of the legs, thighs, abdomen,
‘ and lower part of the thorax. These were
‘ soon succeeded by pain, constriction, and
‘ oppression of stomach and pericardium ;
‘ great sense of internal heat ; inordinate
‘ thirst ; and incessant calls for cold water,
‘ which was no sooner swallowed than re-
‘ jected, together with a quantity of phlegm,
‘ or whitish fluid, like seethings of oatmeal.
‘ The action of the heart and arteries now
‘ nearly ceased ; the pulse either became
‘ altogether imperceptible at the wrists and
‘ temples, or so weak as to give to the finger
‘ only an indistinct feeling of fluttering. The
‘ respiration was laborious and hurried ; some-
‘ times with long and frequently broken inspi-
‘ rations. The skin grew cold, clammy, co-
‘ vered with large drops of sweat ; dank and

‘disagreeable to the feel, and discoloured ;
‘of a bluish, purple, or livid hue. There was
‘great and sudden prostration of strength,
‘anguish, and agitation. The countenance
‘became collapsed ; the eyes suffused, fixed,
‘and glassy, or heavy and dull ; sunk in their
‘sockets, and surrounded by dark circles ;
‘the cheeks and lips livid and bloodless ; and
‘the whole surface of the body nearly devoid
‘of feeling. In feeble habits, where the
‘attack was exceedingly violent, and unre-
‘sisted by medicine, the scene was soon
‘closed. The circulation and animal heat
‘never returned ; the vomiting and purging
‘continued, with thirst and restlessness ; the
‘patient became delirious or insensible, with
‘his eyes fixed in a vacant stare, and sunk
‘down in the bed ; the spasms increased,
‘generally within four or five hours.’

We pursue the train of symptoms, the

morbid appearances, and the treatment, as delivered in the official report of Bombay.

‘ When the disorder ran its full course, the following appearances presented themselves. What may be termed the cold stage, or the state of collapse, usually lasted from twenty-four to forty-eight hours, and was seldom of more than three complete days’ duration. Throughout the first twenty-four hours nearly all the symptoms of deadly oppression, the cold skin, feeble pulse, vomiting and purging, cramps, thirst and anguish, continued undiminished. When the system showed symptoms of revival, the vital powers began to rally, the circulation and heat to be restored, and the spasms and sickness to be considerably diminished. The warmth gradually returned, the pulse rose in strength and fulness, and then became sharp and sometimes hard. The tongue

‘ grew more deeply furred ; the thirst continued, with less nausea. The stools were ‘ no longer like water ; they became first ‘ brown and watery, then dark, black, and ‘ pitchy, and the bowels during many days ‘ continued to discharge immense loads of ‘ vitiated bile ; until, with returning health, ‘ the secretions of the liver and other viscera ‘ gradually put on a natural appearance. The ‘ fever which invariably attended this second ‘ stage of the disease, may have been considered to have been rather the result of ‘ nature’s effort to recover herself from the ‘ rude shock which she had sustained, than as ‘ forming any integrant and necessary part of ‘ the disorder itself. It partook much of the nature of the common bilious attacks prevalent ‘ in these latitudes. There was the hot, dry ‘ skin ; foul, deeply furred, dry tongue, ‘ parched mouth, sick stomach, depraved secretions, and quick, variable pulse, some-

‘times with stupor, delirium, and other
‘marked affections of the brain. When the
‘disorder proved fatal after reaching this
‘stage, the tongue, from being cream-co-
‘loured, grew brown, and sometimes dark,
‘hard, and more deeply furred; the teeth
‘and lips were covered with sordes, the state
‘of the skin varied, chills alternating with
‘flushes of heat, the pulse became weak and
‘tremulous, catching of the breath, great
‘restlessness and deep moaning succeeded,
‘and the patient soon sunk insensible under
‘the debilitating effects of frequent, dark,
‘pitchy, alvine discharges.’

The bodies of those who died in the early stages of the disease are said to have exhibited hardly any unhealthy appearance. The intestines were pale and distended with air, and the abdomen on being opened emitted a peculiar offensive smell. Where the disease had existed for some time, the colour of the

intestines varied from a deep rose to a dark hue, the stomach was found filled with a transparent, a green, or a dark flaky fluid; its internal coats, in some cases, were perfectly healthy; generally, however, they exhibited appearances of inflammatory action, which extended also to the duodenum. Sometimes a layer of coagulate lymph was adhering to the internal coat. The *large intestines* were filled with a muddy fluid or with a dark bile, according to the period at which the patient had been cut off. In most cases the *liver* was enlarged and gorged with blood; in others it was collapsed and flaccid. The *gall bladder* was invariably full of dark green or black bile. The spleen and thoracic viscera were generally healthy. The great veins were usually gorged, and appearances of congestion in the head were in a few cases observed, but, in general, the brain was sound.

When the disease made its appearance in

any particular place, the greatest mortality took place during the first few days of the epidemic. This arose not from want of promptness on the part of the practitioners, nor from any ignorance of the proper means of combating it, but from the extreme violence and rapidity of the disease, which ran, through its various stages, to a fatal termination, before its victims were aware of its real nature. When the disease first made its appearance in a corps the men were unwilling to report themselves when they were attacked, and always fell a sacrifice to the delay ; but when its nature became more manifest, and when it was found that a few hours were sufficient to seal the doom of the patient, proper remedies were promptly administered, and the mortality invariably decreased.

The principal curative means resorted to were bleeding, calomel, opium, and anti-spasmodics.

But the whole hope of success rested on

bleeding, calomel, and opium. When these remedies were employed early and conjointly, the success was in every instance nearly certain. The patient generally fell asleep, and awoke free from the most painful symptoms, or greatly relieved; and when bile appeared in the alvine evacuations, instead of the watery or white clayey matter, it was a sure sign that the remedies were effective, and amendment taking place. After these effects were obtained, it was necessary to give a mild laxative, and the carbonate of magnesia was generally found to answer the purpose.

On so important a subject as this, and one on which the evidence is so widely scattered, our readers will not accuse us, we trust, of needless repetition, if we place by the side of the former accounts the excellent description given by Mr. Scot, in the Report which he drew up for the Madras Medical Board—a work not often seen.

‘ This most formidable disease does not appear to be attended by any premonitory symptoms which can be regarded as being at all peculiar to it ; on the contrary, we may safely assert that it is of sudden invasion, for, though a slight nausea, a laxity of the bowels, and a general feeling of indisposition, are often found to precede cholera, yet these symptoms are evidently common to many acute diseases ; and they are especially frequent in this climate without being followed by any graver ailment. When such symptoms are found to precede cholera, they might with more truth be regarded as indicating merely a certain deranged state of the alimentary organs, a condition of the body which certainly predisposes a person to an attack of cholera.

‘ The invasion of cholera generally takes place in the night, or towards morning. The patient is sick at stomach, he vomits

its contents, and his bowels are at the same time evacuated. This evacuation is of a nature quite peculiar to the disease; the entire intestinal tube seems to be at once emptied of its fœcal or solid matters, and an indescribable but most subduing feeling of exhaustion, sinking, and emptiness is produced. Faintness supervenes, the skin becomes cold, and there is frequently giddiness, and ringing in the ears. The powers of locomotion are generally soon arrested, spasmodic contractions, or twitchings of the muscles of the fingers and toes are felt, and these affections gradually extend along the limbs to the trunk of the body. They partake both of the clonic and tonic spasm, but the clonic form chiefly prevails. The pulse, from the first, is small, weak, and accelerated; and, after a certain interval, but especially on the accession of spasms, or of severe vomiting, it sinks so suddenly as to be speedily lost in

‘ all the external parts. The skin, which, from
‘ the commencement of the disease, is below
‘ the natural temperature, becomes colder and
‘ colder. It is very rarely dry ; generally
‘ covered with a profuse cold sweat, or with
‘ a clammy moisture. In Europeans, it often
‘ partially assumes a livid hue, the whole sur-
‘ face appears collapsed, the lips become blue,
‘ the nails present a similar tint, and the skin
‘ of the feet and hands become much corru-
‘ gated, and exhibits a sodden appearance.
‘ In this state the skin is insensible even to
‘ the action of chemical agents ; yet the pa-
‘ tient generally complains of oppressive heat
‘ on the surface, and wishes to throw off the
‘ bed-clothes. The eyes sink in their orbits,
‘ which are surrounded by a livid circle ; the
‘ corneæ become flaccid ; the conjunctiva is
‘ frequently suffused with blood ; the features
‘ of the face collapse, and the whole counte-
‘ nance assumes a cadaverous aspect, strik-

‘ ingly characteristic of the disease. There is,
‘ almost always, urgent thirst and desire for
‘ cold drinks, although the mouth be not
‘ usually parched. The tongue is moist,
‘ whitish, and cold. A distressing sense of
‘ pain and of burning heat at the epigastrium
‘ are common. Little or no urine, bile, or
‘ saliva is secreted. The voice becomes
‘ feeble, hollow, and unnatural. The respi-
‘ ration is oppressed, generally slow; and
‘ the breath is deficient in heat.

‘ During the progress of these symptoms,
‘ the alimentary canal is very variously af-
‘ fected. After the first discharges by vomiting
‘ and purging, however severe these symptoms
‘ may be, the matter evacuated is always wa-
‘ tery, and, in a great proportion of cases, it is
‘ colourless, inodorous, and often homogene-
‘ ous. In some it is turbid, resembling muddy
‘ water; in others, it is of a yellowish, or
‘ greenish hue. A very common appearance is

‘ that which has been emphatically called the
‘ “ conjee stools,” an appearance produced by
‘ numerous mucous flakes floating in the watery
‘ or serous part of the evacuation. The dis-
‘ charges from the stomach and those from the
‘ bowels do not appear to differ, except the
‘ former being mixed with the *ingesta*. Nei-
‘ ther the vomiting nor the purging are symp-
‘ toms of long continuance. They are either
‘ obviated by art, or the body becomes un-
‘ able to perform these violent actions; and
‘ they, together with the spasms, generally
‘ disappear a considerable time before death.
‘ If blood be drawn, it is always dark or almost
‘ black, very thick, ropy, and generally of
‘ slow and difficult effusion. Towards the
‘ close of the attack jactation comes on, with
‘ evident internal anxiety and distress; and
‘ death takes place often in ten or twelve,
‘ generally within eighteen or twenty, hours
‘ from the commencement of the attack.

‘ During all this mortal struggle and com-
‘ motion in the body, the mind remains clear,
‘ and its functions undisturbed almost to the
‘ last moment of existence. The patient,
‘ though sunk and overwhelmed, listless,
‘ averse to speak, and impatient of disturbance,
‘ still retains the power of thinking, and of
‘ expressing his thoughts as long as his
‘ organs are obedient to his will.

‘ A favourable issue is denoted by a rising
‘ of the pulse, a return of heat to the surface,
‘ inclination to natural sleep, and a diminu-
‘ tion or cessation of vomiting, purging, and
‘ spasms ; these indications being succeeded,
‘ after an interval, by the appearance of faecal
‘ matter in the stools, of bile, of urine, and of
‘ saliva.

‘ Cholera, like other diseases, has presented
‘ considerable variety of symptoms ; but be-
‘ fore we proceed to notice its more striking
‘ varieties, it is necessary to advert to one

‘ feature, which, though not altogether unob-
‘ served in other epidemics, may still perhaps
‘ be regarded as especially distinguishing
‘ Cholera ; namely, that these varieties are
‘ not observable so much in individual cases,
‘ as in what may be termed *local epidemic*
‘ *visitations*. Thus, when the disease appears
‘ epidemically in a town or district, or in the
‘ lines of a corps, or the camp of a marching
‘ regiment, it may, on one occasion, be distin-
‘ guished throughout by the absence of vomit-
‘ ing, and, though more rarely, by the absence
‘ of purging. Spasm may be generally pre-
‘ sent in one instance of invasion ; in another
‘ it may not be distinguishable. A frequent
‘ variety, the worst of all, is that which is
‘ noted for the very slight commotion in the
‘ system, in which there is no vomiting, hardly
‘ any purging, perhaps only one or two loose
‘ stools, no perceptible spasm, no pain of any
‘ kind ; a mortal coldness, with arrest of the

‘ circulation comes on from the beginning,
‘ and the patient dies without a struggle.
‘ This has frequently manifested itself as the
‘ prevailing type, and almost all die who are
‘ attacked by it; but fortunately it has not
‘ lasted long; the disease either disappearing
‘ or assuming, during its further progress, a
‘ milder or less formidable character.

‘ When medical aid is early administered,
‘ and when the constitution is otherwise
‘ healthy, the recovery from an attack of
‘ Cholera is so wonderfully rapid, as perhaps
‘ to be decisive of the disease being essentially
‘ unconnected with any organic lesion. In
‘ natives of this country, especially, in whom
‘ there is ordinarily very little tendency to
‘ inflammatory action, the recovery from Cho-
‘ lera is generally so speedy and perfect, that
‘ it can only be compared to recovery from
‘ syncope, cholic, and diseases of a similar
‘ nature; but in Europeans, in whom there is

‘ a much greater tendency to inflammation,
 ‘ and to determination to some of the viscera,
 ‘ the recovery from Cholera is by no means
 ‘ so sudden or so perfect. On the contrary,
 ‘ it is too often involved with affections as
 ‘ various as the diseases of these viscera are
 ‘ known to be in this climate. The most
 ‘ frequent of the sequelæ of Cholera are af-
 ‘ fections of the intestines, of the brain, of the
 ‘ liver, and of the stomach. When Cholera,
 ‘ however, is of long continuance, and when the
 ‘ *congestion* appears to have been thoroughly
 ‘ established, few, either Europeans or natives
 ‘ who outlive the attack, are restored to health
 ‘ without considerable difficulty.

‘ The appearances on dissection, after death
 ‘ following attacks of Cholera, have been very
 ‘ extensively ascertained in the bodies of Eu-
 ‘ ropean subjects, but in an extremely limited
 ‘ degree in those of native subjects. This is
 ‘ generally stated to have arisen from the

‘ aversion betrayed by the friends of deceased
 ‘ natives to the operation of dissection, as if
 ‘ this aversion were peculiar to them. The
 ‘ truth, however, rather seems to be, that
 ‘ when a European soldier dies, it is extremely
 ‘ rare that there is any person so connected
 ‘ with him as to derive the right of objection
 ‘ to a *post mortem* examination, while every
 ‘ native has friends at hand to see the last
 ‘ offices performed to his body. It is probable
 ‘ that, were the cases similar in this respect,
 ‘ we should hear as much of the objections
 ‘ of Europeans as of natives to dissection of
 ‘ the dead bodies of their friends and relations.

‘ Although dissections are very generally
 ‘ practised in European hospitals in this coun-
 ‘ try, they are performed under some disad-
 ‘ vantages, which must operate, to a certain
 ‘ extent, in diminishing the minuteness and
 ‘ accuracy of the information thence derived.
 ‘ The heat of the climate imposes the ne-

' necessity of interment at a very early period
' after death, and it likewise imposes the ne-
' cessity of interring at certain hours of the
' day, either soon after sunrise, or about sun-
' set. Hence, if a man dies at any time be-
' tween noon and sunset, his corpse is generally
' interred the following morning; if he dies
' any time between sunset and noon, the body
' is generally buried in the following evening.
' It follows, therefore, that there is often but
' a very limited time allowed for dissection;
' the pressure of these circumstances, however,
' not unfrequently leads to the operation being
' performed so immediately after death as to
' afford considerable advantages. Dissections
' have been chiefly made on the bodies of
' European soldiers—a class of men acknow-
' ledged to be peculiarly liable in this climate
' to visceral disease of all kinds. Under
' these circumstances dissection reports should
' be viewed with care, in reference to the

' general states of morbid bodies, and with
 ' the most attentive consideration of the pre-
 ' cise import of the terms employed.

' The external appearance of European sub-
 ' jects, who have sunk under Cholera, closely
 ' resembles that which has been noticed as
 ' taking place during life. The surface is
 ' livid, the solids are shrunk, the skin of the
 ' hands and feet is corrugated. There seems
 ' no sufficient evidence of any uncommon ten-
 ' dency in the body to putrefaction after death,
 ' nor of any characteristic foetor from the ab-
 ' dominal cavity. No particular morbid ap-
 ' pearances have been found in any of the
 ' cavities of the body which are lined with
 ' *serous membranes*, or in these membranes
 ' themselves. The cavities of the pleura, of
 ' the pericardium, and of the peritoneum,
 ' have almost uniformly been found in a
 ' natural state, or the deviations from that
 ' state have manifestly had no connection with

‘ Cholera. The surfaces, which are lined or
‘ covered with *mucous membranes*, have, on
‘ the contrary, very generally exhibited signs
‘ of disease. These will be noticed as the
‘ organs connected with them come to be
‘ mentioned.

‘ The lungs have not unfrequently been
‘ found in a natural state, even in cases where
‘ much oppression of respiration had existed
‘ previously to death. Much more generally,
‘ however, they have been found either to be
‘ gorged with dark blood, so that they have
‘ lost their characteristic appearance, and have
‘ assumed more that of liver, or spleen ; or
‘ they have been found to be in the opposite
‘ state—that is, collapsed into an extremely
‘ small bulk, and lying in the hollow on each
‘ side of the spine, leaving the cavity of the
‘ thorax nearly empty. This appearance has
‘ been so remarkable as to induce Dr. Pollock
‘ of H. M. 53d regiment to conceive, that it

‘ could only be produced by the extrication
‘ of a gas within the cavity of the pleura,
‘ capable of overcoming the atmospheric pres-
‘ sure. It is understood, however, that op-
‘ portunities were had of piercing the thorax
‘ of the dead body under water, and that no
‘ gas was extricated. As there appears to
‘ have been an absolute vacancy in the cavity
‘ of the pleura, that is to say, the lungs did
‘ not by any means fill it, it would seem that
‘ that viscus had exerted a contractile power,
‘ adequate to overcome the pressure of the
‘ atmosphere. The blood found in the lungs
‘ has been always very black. The heart and
‘ its larger vessels have been found to be dis-
‘ tended with blood, but not so generally as
‘ the apparent feebleness of their propelling
‘ power, and the evident retreat of the blood
‘ to the centre, would have led us to expect.
‘ The right auricle and ventricle being gorged
‘ with blood is nothing peculiar to Cholera ;

but some dissections have shewn the left cavities to be filled even with *dark* or *black* blood, which we may reckon as a morbid appearance more peculiar to it. In the abdominal cavity, the peritoneal coverings of the viscera, being *serous membranes*, present, in general, but little deviation from the healthy state : occasionally, indeed, the morbid accumulation of blood in the vessels of the viscera, imparting an appearance of turgidity and blueness, is evident on their exterior surfaces. We also find them bearing marks of inflammation, especially where the patient may have lingered long before death. In other cases the whole tube has had a blanched appearance, both externally and internally. The stomach and intestines generally preserve their ordinary volume. The appearance of the omentum is not sensibly affected in Cholera. The stomach is found to be so variously affected, as to destroy all

' grounds for pathological reasoning. It is
 ' very rarely found empty, or much contracted
 ' after death, nor has any appearance of spas-
 ' tic stricture of the pylorus been often de-
 ' tected. It has, however, sometimes occurred.
 ' Its contents appear to be chiefly the ingesta
 ' in an unaltered state: in some cases, greenish,
 ' or yellow, or turbid matters are found. The
 ' stomach has been said to have been found
 ' "lined with calomel." Various appearances,
 ' either of active inflammation, or a congested
 ' state of the vessels, have been noticed, some-
 ' times in one part, and sometimes in another.
 ' The parts seem as if they were sphacelated;
 ' thickened, softened, and friable; and, in short,
 ' exhibit so great a variety of appearances,
 ' from a perfectly natural state to the most
 ' morbid, that no particular light is thrown by
 ' them on the disease.

' The intestinal tube is sometimes collapsed,
 ' but oftener found to be more or less filled

‘ with air ; distended in some parts into bags,
‘ or pouches, containing whitish, turbid, dark,
‘ or green coloured fluid ; and in others, pre-
‘ senting the appearance of spastic constrict-
‘ tion. The latter, however, is not common.
‘ No fæcal or other solid matters are found in
‘ the intestines ; but, very commonly, large
‘ quantities of the conjee looking fluid, or of
‘ turbid, serous matter. The duodenum and
‘ occasionally the jejunum have been found
‘ loaded with an adherent, whitish, or greenish
‘ mucus ; at other times they have been found
‘ seemingly denuded of their natural mucus,
‘ and often perfectly healthy. Traces of bile
‘ in the intestines, or of any substances ap-
‘ parently descended from the stomach, are
‘ exceedingly rare. Sanguineous congestion,
‘ and even active inflammation, are stated to
‘ be more common in the bowels than in the
‘ stomach ; but on the other hand, instances
‘ are very numerous where no such indications

‘ have been detected. The thoracic duct is
‘ stated to have been empty of chyle. The
‘ liver has been commonly found to be gorged
‘ with blood, but not always : it is an organ
‘ usually very vascular ; and it would probably
‘ demand a nicer discrimination than has been
‘ bestowed on the subject, to distinguish the
‘ degree of congestion in which it is naturally
‘ left by the settling of the blood after death
‘ in ordinary diseases, from that which has
‘ been observed after an attack of Cholera.
‘ The gall bladder has almost universally
‘ been found to contain bile, and in the great
‘ majority of cases, even to be completely
‘ filled with it. As is usual with this secretion
‘ in cases of retention, it is of a dark colour.
‘ Very different states of the gall ducts have
‘ been described : cases of constriction and
‘ impermeability seeming to be equally nu-
‘ merous with those of an opposite character.
‘ The urinary bladder is found, we may say

‘ universally, without urine, and very much
‘ contracted. The lining or mucous membrane
‘ of the bladder and ureters have been found
‘ coated with a whitish mucous fluid. The
‘ smallness of the bladder after death has been
‘ generally adduced in proof of great spasm ;
‘ but it is not unfrequently found to be equally
‘ small after death from other diseases ; and
‘ it seems the nature of that organ, when it
‘ contains no urine, to contract, so as to leave
‘ no cavity. Dr. Baillie, in his *Morbid Ana-*
‘ *tomy*, thus notices this fact : “ The bladder is
‘ also found contracted to such a degree as
‘ hardly to have any cavity. This is gene-
‘ rally not to be considered as a disease, but
‘ simply as having arisen from a very strong
‘ action of the muscular coat of the bladder
‘ previously to death.” The appearance of
‘ the spleen, which is so various under the
‘ ordinary conditions of the body after death,
‘ has indicated nothing that can be mentioned

‘ as belonging to Cholera. The vessels of
 ‘ the mesentery have been very generally
 ‘ found to be uncommonly full of blood.

‘ In the head, appearances of congestion, and
 ‘ even of extravasation, have been frequently
 ‘ observed ; but not so uniformly, nor to such
 ‘ extent, as to require any particular notice.
 ‘ Only one case has been given, where the
 ‘ state of the spinal marrow was examined ;
 ‘ and in that, indications of great inflamma-
 ‘ tion were detected in its sheath : the case,
 ‘ however, was in some degree a mixed one.

‘ From this general view of the appear-
 ‘ ances found on the dissection of the bodies of
 ‘ persons who have died from Cholera, it is
 ‘ manifest, that the information thence deri-
 ‘ vable is, in a pathological view, of a nega-
 ‘ tive nature only. It is, nevertheless, of
 ‘ consequence in a practical sense, especially
 ‘ in treating the sequelæ of Cholera*.’

* Scot. Report, xxxii—xxxiv.

ON THE TREATMENT OF CHOLERA IN INDIA.

Mr. Annesley gives the following account of the way in which epidemic spasmodic cholera has usually been treated under his direction* :—

‘ A patient is admitted into the hospital, I
‘ shall say at noon, with all the symptoms of
‘ cholera : a vein is immediately opened, and
‘ one scruple of calomel and two grains of
‘ opium are given in the form of a pill, and
‘ washed down with the camphor draught.
‘ The body and extremities are well rubbed
‘ with dry flannels made warm, and bottles
‘ filled with hot water are applied to the feet
‘ and hands ; but if the spasms are severe,
‘ spirits of turpentine are used as an embro-
‘ cation. In an hour we generally perceive the
‘ effects of these remedies, and whether the
‘ disease be in any degree arrested, or be pro-

* Diseases of India, second edition, p. 156.

ceeding in its progress. If the former, nothing more is to be done till evening, when the calomel pill may be repeated, and an enema exhibited. The following morning the bowels should be again fully evacuated, and then the patient may be considered safe.

When blood, however, cannot be drawn from the arm, and the spasms continue; when severe pain and burning heat are felt at the umbilicus and scorbiculis cordis, and are distressing; when the skin is cold and deluged with cold, clammy dew, and when there are oppression of the chest and difficulty of breathing, excessive pain and confusion about the head, with great intolerance of light, no pulse, or a pulse scarcely to be felt, and a cadaverous smell from the body; twenty or thirty leeches should be applied immediately to the umbilicus and scorbiculis cordis, the calomel pill should be repeated, and the turpentine embrocations continued.

‘ Leeches ought likewise to be applied to the
 ‘ temples and base of the skull.

‘ When the leeches bleed freely, the appli-
 ‘ cation of them is always attended with de-
 ‘ cided advantage, and they should be allowed
 ‘ to remain till they have fulfilled their duty ;
 ‘ after which a large blister or sinapism should
 ‘ be applied over the whole abdomen. Some-
 ‘ times the leeches fasten, but do not draw
 ‘ blood. In this case they should be removed
 ‘ immediately, and the sinapism or blister ap-
 ‘ plied in their place. When the bowels are
 ‘ very irritable, and constantly discharging
 ‘ a watery fluid, small anodyne enëmas, with
 ‘ camphor, may be given, and the drogue
 ‘ amère, a nostrum used by the Jesuits, will
 ‘ be then found very useful in assisting the
 ‘ operation of calomel, which latter should
 ‘ always be repeated every two hours, till
 ‘ three or four scruples have been taken.

‘ Whenever we fail in checking the disease

at first, we have no resource but to treat urgent symptoms, and they must always be met with decision as they occur. The patient ought never to be left a moment without an attendant who is capable of acting according to circumstances, and who may take advantage of every change.

An opportunity sometimes offers in the advanced stage of the disease to abstract blood: this is indicated by a struggle or effort of the circulating system to overcome some resisting power, and is a most suspicious symptom, which should never be overlooked. This re-action indicates that the constitution is making an effort to restore the circulation, but is unable to do so till assisted by the abstraction of blood, which abstraction aids in removing that oppression which it has not power of itself to overcome. This is a point in the treatment of Epidemic Cholera of the greatest importance, requiring both tact and judg-

‘ment ; but the change in the circulation
‘indicating the propriety of adopting and the
‘time of performing it should always be ex-
‘pected and taken advantage of as soon as it
‘occurs.

‘In this manner the treatment proceeds,
‘sometimes with evident signs of success,
‘at others without the least impression being
‘made upon the disease. A very few hours,
‘however, will frequently develope what we
‘ought always to hope for, and even to ex-
‘pect, *viz.*, a favourable change. This is
‘always accompanied by relief from the
‘bowels in the form of a blackish, grey,
‘feculent, and tenacious discharge. When-
‘ever this takes place there is hope, and the
‘exhibition of calomel should be followed up
‘by a smart purgative, if the stomach will
‘receive it ; if it will not, the enema should
‘be administered and repeated till motions
‘are procured. The purgative I have ge-
‘nerally found to answer best at this stage

‘ of the disease, and to sit most lightly on the
‘ stomach, is the following draught :—

‘ R pulv. jalap. comp. ʒss.

‘ Aq. menth. pip. ʒij.

‘ M. ft. haust.

‘ And, as it is a matter of the very first con-
‘ sequence to act upon the bowels freely as
‘ soon as possible, if this draught have no
‘ effect in two or three hours it should always
‘ be repeated.

‘ Urine is neither secreted nor passed dur-
‘ ing the continuance of the disease ; when-
‘ ever it appears, which it frequently does,
‘ with a full and free discharge from the
‘ bowels, the occurrence is always favourable.

‘ Twelve or eighteen hours generally ter-
‘ minate this disorder either one way or the
‘ other ; but when we succeed in subduing the
‘ violence of the attack, the greatest attention
‘ and care are required to preserve the patient
‘ against the effects of that general disturb-
‘ ance which the constitution has suffered.

‘ The subsequent treatment is now to be
‘ considered ; and the indication in this stage
‘ is to guard against congestion in the abdo-
‘ minal and thoracic viscera, and in the brain,
‘ some one of which suffers in a greater or
‘ less degree, and occasionally the whole are
‘ attacked at the same time.

‘ The eyes are sometimes peculiarly bright,
‘ with contracted pupils, and there is an evi-
‘ dent intolerance of light ; yet these patients
‘ insist that they have no uneasiness in the
‘ head, and that they can look at the light
‘ with perfect ease.

‘ The pulse is often oppressed and labour-
‘ ing, notwithstanding a very large quantity
‘ of blood may have been taken during the
‘ first stage of the disease.

‘ These are symptoms that require imme-
‘ diate attention, and, when urgent, blood
‘ should be taken from the arm, but, in gene-
‘ ral, leeches will answer every purpose, and

‘ I consider them a safer remedy in this
‘ stage of the disease than general bleeding,
‘ because they appear to me to empty the
‘ capillary vessels, and aid in regulating the
‘ circulation without destroying power—a
‘ point of great importance where the consti-
‘ tution has already suffered so severely.

‘ When the patient shrinks from pressure
‘ on the abdomen, leeches should be placed
‘ over it in considerable numbers, and parti-
‘ cularly in the neighbourhood of the liver;
‘ and when the head is affected, they should
‘ be applied at the temples and base of the
‘ skull.

‘ Whilst these symptoms of oppression and
‘ congestion require the most minute atten-
‘ tion, we must not lose sight of the state
‘ of the alimentary canal, of the secretions of
‘ the small intestines, and of the alvine dis-
‘ charges.

‘ Though the irritability of the stomach

‘ sometimes continues till a very late period,
‘ yet in general it is subdued early, and that
‘ organ retains all that is taken, both as me-
‘ dicine and nourishment ; but as the small
‘ intestines exhibit, on dissection of fatal cases,
‘ a most peculiar appearance, from the duo-
‘ denum to the cœcum ; as they are very
‘ much contracted in their diameter, thick-
‘ ened and pulpy in appearance ; and as they
‘ are, when laid open, found filled with a
‘ cream-coloured, thick, viscid, and tena-
‘ cious matter, exactly like old cream-cheese,
‘ which obstructs their canals ; and, more-
‘ over, as this matter is to be found in every
‘ fatal case of Cholera, so it may be inferred
‘ to exist in some degree even in all that re-
‘ cover ; and therefore the removal of it must
‘ be a primary consideration.

‘ Purgatives do not seem, however, to act
‘ upon this matter at first, for they merely
‘ produce watery dejections ; so long, there-

‘ fore, as these continue, we may be sure that
‘ all is not right, even although they be
‘ reported copious and free. The dejections
‘ should always be examined with great care ;
‘ for, until the above described matter is
‘ brought away, I never consider that I have
‘ made much advancement in the cure.

‘ Calomel, in scruple doses, I have always
‘ found most useful in removing this peculiar
‘ secretion. Sometimes I have combined the
‘ calomel with aloes, and continued it every
‘ night and morning, till the dejections be-
‘ came of a blackish grey colour, substantial
‘ and tenacious. The purging draught and
‘ the enema were then had recourse to, with
‘ the best effects.

‘ This practice was followed up regularly
‘ every day with leeches, blisters, &c. &c., ac-
‘ cording to circumstances. In a day or two
‘ the motions were usually observed to be-
‘ come dark green, which colour always indi-

' cated an approach to healthy action. The
' calomel and purging draughts were still
' continued, however, five or six days longer,
' till the dejections became more natural, and
' a visible improvement was observed in the
' appearance of the patient. He was then
' put upon an alterative course of medicine
' for a month or more, according to circum-
' stances. This latter measure is absolutely
' necessary to prevent a relapse, which is
' very common, and always dangerous.

' This plan of treating the epidemic Cho-
' lera, which was adopted in the general hos-
' pital at Madras, under my charge, during
' the prevalence of that disease from 1819 to
' 1823, was attended with a success that cer-
' tainly far exceeded my expectations.'

The practice of Mr. Corbyn, and the other medical officers in India, was nearly similar. Mr. C.'s plan (which was widely followed) was to give twenty grains of calo-

mel (in powder, not in pills), and to wash it down with sixty drops of laudanum, and twenty drops of oil of peppermint in two ounces of water; to bleed freely in the early stage; and to support the warmth by external heat, the hot bath, and hot friction, and internally by cordials.*

In Mr. Scot's able report on Cholera, which we have so often followed, he quotes with approbation the following 'directions for the cure of Cholera,' which had been communicated to the Madras Board by a medical officer; they are detailed in a popular manner, and appear well suited for instructing individuals how they are to proceed in the absence of medical aid. They also present a concise and intelligible method of treatment for the guidance of subordinate medical attendants, who are frequently called

* Med. Chir. Transactions, vol. xi. part i. p. 122.

upon by circumstances to assume the charge of a patient labouring under Cholera.

DIRECTIONS FOR THE CURE OF CHOLERA.

‘ Give the patient, as soon as possible, the draught prescribed, thus :

- ‘ Tincture of opium,
- ‘ Sulphuric æther, of each one drachm,
- ‘ Brandy, or arrack, half an ounce,
- ‘ Water, one ounce—mix.

‘ If this be vomited, let it be repeated, every time, in ten minutes, after the vomiting. In half an hour, after the vomiting has ceased, give a bolus of this prescription:

- ‘ Calomel, twelve grains,
- ‘ Camphor, three grains,
- ‘ Opium, one grain,
- ‘ Oil of peppermint, three drops,
- ‘ Make into a bolus.

‘ If this bolus be vomited, it must be repeated in a similar manner each time, half an hour after the vomiting has ceased.

‘ If the vomiting be violent, give an injection of one drachm and a half of laudanum in four ounces of conjee water : and let it be repeated as often as it is rejected. Half the quantity of this injection should also be administered after every liquid stool.

‘ When no vomiting occurs at all, give a draught and bolus of the following prescription :

‘ Tincture of opium,
‘ Sulphuric æther, of each half a drachm,
‘ Ipecacuanha wine, half an ounce,
‘ Water, two ounces—mix.

‘ Calomel, twelve grains,
‘ Extract of jalap, four grains,
‘ Camphor, three grains,
‘ Opium, one grain,
‘ Oil of peppermint, two drops,
‘ Make into a bolus.

‘ If these produce no effect, repeat the draught after every forty minutes.

‘ In all cases rub the arms and legs with

‘ hot sand, and apply a blister or sinapism
‘ over the stomach, immediately after the first
‘ dose of medicine has been given.

‘ If the pulse be perceptible at the wrist,
‘ take twenty, twenty-five, or thirty ounces of
‘ blood from the arm.

‘ If the case be lingering and doubtful,
‘ after much medicine has been given, then
‘ omit all other medicines but those pre-
‘ scribed, thus :

‘ Calomel, three grains,
‘ Ipecacuanha, two grains,
‘ Aloes, three grains,
‘ Opium, half a grain,
 ‘ Make into a pill;
 ‘ One to be taken every hour.

‘ Conjee water, four ounces,
‘ Brandy, or arrack, three drachms—mix : to be
taken every hour.

‘ The patient, if thirsty, is to be frequently
‘ supplied with acid drink, a wine glass full of
‘ tepid water, acidulated with lime-juice or

‘citric acid, or with nitric or sulphuric acid,
‘may be given as often as the patient re-
‘quires it.’

Mr. Scot makes some observations on the
use of what he denominates empirical re-
medies in this disease.

‘1. Castor oil. Its virtues have been
‘extolled in a very positive manner, and it
‘has been used in doses of half an ounce,
‘combined with fifteen or twenty drops of
‘laudanum, by some medical officers. The
‘success was very considerable, and there
‘seems to be sufficient evidence to warrant a
‘more extensive trial.

‘2. Oil of turpentine has been exhibited,
‘but not so generally as to afford sufficient
‘evidence of its merits.

‘3. Magnesia, combined with milk, has

‘ caused considerable discussion : several instances will be found in the original reports and cases in which it seemed to be employed with advantage ; but, from the evidence in possession of the Madras Board, it can only be ranked as an adjuvant, and one of very limited powers.

‘ 4. The inhalation of the vapour of sulphuric æther has been tried, and though on a very limited scale, there appears ground to believe that it may be of use.

‘ 5. While many practitioners were anxious to emulge the gall-ducts, the benefit of biliary fluid in the first passages was boldly attempted to be attained by administering the bile of animals, chiefly that of the ox. The practice was in the end entirely abandoned.’

ON THE USE OF DILUENTS IN THIS DISEASE.

Diluents appear at one time to have been banished from the treatment of this disease by almost universal consent. The prejudice was founded on the difficulty of retaining them on the stomach. But the feeling of thirst is dreadful ;—is it safe to disregard the providential voice of nature ? The patient desires cold drink. Mr. Scot, and almost all practitioners, have imagined that *cold* drinks are always dangerous, and generally fatal. Mr. Scot yields to the propriety of giving bland and *tepid* diluents ; but Mr. Annesley has advanced further, and has given the *cold* diluent of nitric acid and water. It has become the general drink at the hospital under his care, and relieves the most distressing symptom, the burning sensation at the stomach*.

* Annesley, p. 174.

ON THE MORTALITY OF SPASMODIC CHOLERA
IN INDIA.

This is one of the most fatal diseases with which we are acquainted : the proofs of this assertion will be but too frequently visible throughout this work. It seems to be one of those diseases which the efforts of nature alone are seldom, if ever, known to remedy. The delay of but a few hours places the sufferer beyond the assistance of art ; hours in this malady are equivalent to whole days in other disorders. Such of the reports of the native revenue officers as have come under the observation of the Medical Board of Madras, all tend to prove that by far the greater proportion of people who suffered attacks of Cholera, and had no efficient aid, perished.

The *Ameen* of *Ganjam* writes thus : ‘ The people who get the Cholera Morbus never recover—death to them is certain.’ The

Resident at Hyderabad states, that he feared that every case treated by the *natives* proved fatal. The family of a wealthy Nair in Travancore, consisting of nineteen people, were all, save one, cut off in a few hours. Dr. Searle, at Manontoduy, states, that of twenty-eight villagers attacked, twenty-six died, and the other two recovered through his assistance.

In the Appendix, No. III., will be found a complete table of the number of cases occurring in the army of Fort St. George during four years, both among Europeans and natives. This table is the more interesting as it shows the proportion of persons attacked out of a given strength, and also as it indicates the greater mortality among the natives than among the Europeans.

In several parts of this work will be found fresh confirmation of a most important prin-

ciple in state medicine—that *the tendency to a fatal termination of disease increases in proportion to the poverty and ignorance of the individual*. In another work I had frequent occasion to illustrate, and, if the expression may be used without presumption, perhaps to establish the signal operation of prosperity, affluence, and civilization on the attainment of old age, and on blunting the arrows of disease; and the facts which have since come to light respecting the susceptibility of various individuals to the present disease afford a remarkable confirmation of the views to which allusion is made*.

Dr. Taylor, a gentleman who had the principal practice in the disease at Bombay, makes a return of nearly six deaths in a hundred, in the cases where medicine was administered.

Mr. Ogilvy, secretary to the Board, makes

* Elements of Medical Statistics.

a very important remark, that it was not ascertained *that any case had recovered in which medicine had not been administered.* The population of Bombay is above 200,000. The proportion of the attacks of the disease to the number of inhabitants was about seven and a half sick in the hundred.

To illustrate the utility of *bleeding*, Dr. Burrell* makes the following return :

Bled	88, of whom died	2
Not bled	12 .. ditto ..	8
Admitted	100	Deaths .. 10

Mr. Tod, from Camp Chumargoody, in 1818, states, that he has had altogether an hundred cases where the *calomel and opium* plan has been followed, and that though ten or twelve have died, these were either such aged subjects that no rational hope of recovery could be entertained, or were brought

* Surgeon of the 65th Regiment, dated Seroor, July, 1818.

in at such an advanced stage of the disease as to be beyond the power of medicine.

Mr. Richards reports from Punderpoor, 1818, 'up to this morning the admissions amount to one hundred and seventy; out of which eight casualties have occurred.' This gentleman bled, and employed the large doses of calomel and laudanum.

Mr. Annesley observes, that most of the fatal cases were nearly moribund on their first admission into the hospital; on the other hand, all the cases that recovered were brought for assistance before the circulation had completely ceased, and when blood could be freely drawn.

Fifty-nine cases of epidemic cholera were treated by him in the general hospital at Madras, from the 23d of May till the 23d of August, 1819; of which number fifteen died, nearly one in four, as the following statement will show:—

From the 23d to 27th May. . .	10	were admitted,	5	died.
1st to 23d June. . .	15. . .	ditto. . . .	6	do.
3d to 5th July. . .	6. . .	ditto. . . .	1	do.
7th to 23d August 28. . .	ditto. . . .	3	do.	
	<hr/>		<hr/>	
	59		15	

In the cases where recovery took place, the disease was met at an early period ; and in those which terminated fatally, four, five, and six hours had elapsed from the first attack, before medical assistance was had recourse to. From this fact it appears evident, that if the disorder be taken at its commencement, or within an hour after the seizure, it is as manageable as any other acute disease ; but the rapidity with which it runs through its course, requires the most active exertions before it can be checked, and the loss of an hour may cause the loss of a life*.

* Annesley on the Diseases of India, Second Edition, p. 175.

CHAPTER VIII.

The Symptoms, Appearances after Death, Mortality, and Treatment of the Epidemic Cholera of Russia.

SIR WILLIAM CRICHTON, Physician to the Emperor at St. Petersburg, has transmitted to this country a very valuable summary of the facts ascertained respecting the epidemic of Moscow. He gives the following account of the *symptoms* of the disease :—

‘ General uneasiness ; violent head-ache
‘ and giddiness ; great languor ; oppression
‘ at the chest ; pain at the pit of the stomach
‘ and sides ; a very weak pulse and frequent
‘ vomiting, first of undigested food, and then
‘ of a watery fluid mixed with phlegm* ;
‘ frequent purging ; severe pains ; cessation
‘ or very scanty secretion of urine ; excessive

* Some have remarked that this discharge has a certain particular odour, characteristic of the disease.

‘ thirst ; cramps in the legs, beginning at the
 ‘ toes, and by degrees reaching the body ;
 ‘ voice feeble and hoarse ; eyes dull, and
 ‘ sunk in the head ; the features changed and
 ‘ like those of a corpse ; coldness, contrac-
 ‘ tion, and bluish tinge of extremities ; cold-
 ‘ ness over the whole body, the lips and
 ‘ tongue becoming blue ; cold and clammy
 ‘ perspiration. The vomiting and purging
 ‘ soon exhaust the patient ; the spasms be-
 ‘ come greater, attacking the most vital
 ‘ parts ; the pulse ceases ; the beating of the
 ‘ heart becomes scarcely sensible ; and the
 ‘ patient, after suffering the most horrid
 ‘ martyrdom, dies quietly, having a few mo-
 ‘ ments’ ease just before his end. The dura-
 ‘ tion of this malady is generally from twenty-
 ‘ four to twenty-eight hours ; but sometimes
 ‘ its course is still more rapid*.’

The detail of symptoms presented in the

* The thermometer placed under the tongue, during two minutes, sank in one case to 77°, and in another to 88° of Fahrenheit. (Keir.)

circular which the Austrian government has distributed, and, indeed, all the accounts which have been published, agree with the above. An elaborate epitome of the disease, which Dr. Keir, of Moscow, has lately transmitted to our government, coincides with it, as does the verbal account given by Mr. Harvey, an English resident at Moscow, to several persons in this country. We shall add, however, a very detailed case, related by Dr. Sokolov, who attended the patient. He was a joiner by trade, and the third person who became ill at Orenburg (the capital of the Russian province of that name), in September, 1829. This was the *first* epidemic.

‘ The disease began at two in the morning, with a dreadful purging, which returned every minute. Although the weather was cold and wet, the patient went out of doors to obey the calls of nature, barefooted and undressed, and without any pre-

‘ caution. About five o’clock he was without
 ‘ feeling, quite powerless, and affected with
 ‘ constant cramps. At six I found him again
 ‘ sensible, but with sunken pale-blue cheeks,
 ‘ dimness of the eyes, coldness of the feet and
 ‘ hands, and bedewed with clammy sweat.
 ‘ He was tossing about, and complaining of
 ‘ trembling of the hands, a sense of oppression
 ‘ at the pit of the stomach, and intolerable
 ‘ thirst. The vomiting, which, according to
 ‘ his own account, commenced much later
 ‘ than the purging, was at this time less fre-
 ‘ quent than it had been ; but the alvine dis-
 ‘ charges continued to recur incessantly, and
 ‘ were passed involuntarily. The exhausted,
 ‘ powerless condition of the patient, in par-
 ‘ ticular his completely imperceptible pulse,
 ‘ both at the wrist and over the heart,
 ‘ the stiffness of the limbs, the coldness of
 ‘ the tongue, belly, and præcordia, left me
 ‘ no hope of his recovery. The administra-

‘tion of opium with oil of peppermint and
‘ether checked the vomiting only for a short
‘time; anodyne clysters had no better effect
‘on the diarrhoea; and warm frictions, spi-
‘rituous drinks, and even the hot-bath, were
‘resorted to without success to restore the
‘temperature and bring back the pulse. An
‘unsuccessful attempt was in the last place
‘made to draw blood from a vein; and soon
‘afterwards the man expired. Twenty mi-
‘nutes after his last breath, and when the
‘corpse had been already washed and dressed,
‘it was affected all at once with frightful
‘movements. Convulsive motions took place
‘in the hands and feet, like those excited by
‘galvanism, commencing first in a few mus-
‘cular fibres, especially in the neck and
‘thighs, extending in a vermicular manner,
‘and suddenly producing bending of the head,
‘and agitation and elevation of the feet.
‘These spasms continued with intervals for

'ten minutes, becoming in the end faint and rare. The same phenomena, though in a less remarkable degree, were observed on another occasion only, but so long as six or seven hours after the termination of the symptoms of the disease.'

These muscular contractions after death were also occasionally observed in the Cholera of the East Indies. For this remark, and for the above case, we are indebted to the able analysis given of the Russian official documents in the *Edinburgh Medical Journal* of July, in this year. A very comprehensive review will there be found of the work which Professor Lichtenstädt, of St. Petersburg, has recently framed from the official reports*.

So early as August, 1823, the Supreme Medical Council, alarmed at the near ap-

* Die Asiatische Cholera in Russland, &c. Berlin, 8vo, 1831.

proach of the disease, had published *instructions for the local boards*, in order to enable physicians in the frontier districts to recognise, prevent, and treat the disease.

The ordinary duration of the disease in the province of Orenburg was from twelve to twenty-four hours. A few individuals were twice attacked by the disease.

‘ During the prevalence of the epidemic, there was scarcely a single inhabitant of the city of Orenburg who had not some symptoms of disordered digestion. One complained of oppression and pain in the breast ; another of headache, slight sickness, looseness of the bowels, and the like. These trifling symptoms of disease were usually ascribed to errors in diet. But to me it appears that their cause was a general invasion of the system by Cholera, which, however, was prevented from developing itself in its perfect characters, by a regular

‘manner of living, and other circumstances
 ‘of the kind. This may be considered as
 ‘proved by the almost universal prevalence
 ‘of symptoms of disturbed digestion, their
 ‘originating without any apparent cause,
 ‘especially in persons newly arrived at Oren-
 ‘burg, and their departing under the usual
 ‘treatment*.’

Dr. Keir, an English physician, who has resided above twenty years at Moscow, has mentioned, in the report upon the disease which he has lately transmitted to this country, that he observed in one case towards the termination of the disease sup-
 puration of the parotid glands, and a suppurating axillary bubo. This observa-
 tion is, we believe, confined to Dr. Keir—we have not found any similar statement in the Anglo-Indian or Russian authorities. Abscesses, formerly styled *critical*, are not unusual at the close of fever.

* Dr. Onufriew, in the Russian Official Documents.

APPEARANCES AFTER DEATH.

Along with the usual signs of internal venous congestion, most agree in saying, that marks of inflammation were found in the intestinal canal. Several however state, that traces of inflammation were far from being invariably present ; and on the whole, since they do not particularly describe the appearances set down as inflammatory, it is reasonable to conclude, that the supposed signs of inflammation were nothing else than the redness and blackness of the mucous coat of the intestines, which are apt to occur whenever the blood is by any cause driven inwardly in unusual proportion*.

Dr. Joehnichen asserts, that both at Taganroy and at Moscow it is universally admitted, that *several species of animals* died with the symptoms characteristic of Cho-

* Edinburgh Medical Journal, July, 1831. See also Appendix, No. XXVI.

lera, such as geese, turkies, fowls, and crows.

MORTALITY.

In the city and suburbs of Orenburg, the disease had disappeared entirely on the 20th of November, having lasted ten weeks; and from first to last eleven hundred were seized, and two hundred died. When it is added that the population amounts to about eleven thousand inhabitants, a clear idea will be conveyed of the extent of the epidemic.

The difference in the mortality at different places in the province of Orenburg is very striking and well worthy of notice. In the forts of Rasüpna, Nischne-ozernaja, and Iletsch, situated within sixty miles west and south-west of Orenburg, of six hundred and twenty-one sick only thirty-three died, or about one-tenth. In four villages situated in the circle of Orenburg, and

within sixty miles of the city, of two hundred and forty sick one hundred and thirty-eight died, or above one-half. In two other villages adjoining those now mentioned, and in three others in the circle of Menzelinsk, at the northern border of the unhealthy country, eighty-nine died of one hundred and sixteen, being a mortality of nearly three-fourths. The total average for the whole district which suffered was about a fourth; and this appears also to have been nearly the proportional mortality in the larger towns. On the whole the mortality seems to have been less wherever a garrison was stationed—a fact which is easily accounted for by the superior civilization in the neighbourhood, as well as the more immediate access to medical assistance, and the more rigorous enforcement of the municipal regulations which were called for by the emergency of the case. There is a

singular circumstance, however, regarding the relative mortality in civil and military life in the city of Orenburg, which is distinctly pointed out by the statistical returns, but which is neither noticed nor accounted for in any of the official reports ; and this is, that the mortality was much greater among the soldiery than throughout the inhabitants at large. Of the eleven thousand inhabitants, six thousand are considered as of the military class ; and of these two hundred and ninety-nine were affected, and seventy-nine died, or more than a fourth : while among the remaining inhabitants eight hundred and one were attacked, and only one hundred and twenty-one died, or very little more than a seventh.

The mortality of the *second* epidemic of 1830, which was everywhere considerably greater than in the Orenburg epidemic, differed much in different towns, being in

Astrachan one-third of the cases, in the government of Kostroma rather less, in Nischnei-Novgorod one-half, in Kasan and Moscow three-fifths, in Penza and in the country of the Don Cossacks two-thirds, —and in the whole of these places, taken collectively, the number affected was fourteen thousand, and the deaths seven thousand seven hundred; so that the total average mortality throughout the invaded districts may be safely assumed to have been one-half. The mortality in Moscow varied greatly at different periods of the epidemic, being at first so high as nine-tenths of the cases, and afterwards sinking gradually to seven-eighths, five-sixths, three-fourths, a half, and at last to a third. The decrease was probably owing in part to a change in the virulence of the epidemic; but much must also be ascribed to the zeal of the government in providing the means

of subjecting the patients in the poorer ranks to medical treatment at an early period of the disease. In illustration of the importance of early medical treatment, an interesting fact is stated in one of the reports from the government of Saratov, where the disease was in general virulent. On the estate of Count Gurjev, in that government, one hundred and sixty-six persons were attacked, and nineteen died without any treatment; but of the remaining one hundred and forty-seven, who were subjected to treatment at an early stage, twenty-six only were cut off, that is, little more than a sixth part.

Another particular which is worthy of notice, as being on the whole at variance with the usual properties of terrestrial miasmata, though certainly by no means so important as the facts already mentioned, is, that elevation above the plain where the

Cholera prevailed did not constitute any protection. In the East Indies it was, we believe, invariably observed that Cholera did not proceed up the mountains. In the government of Orenburg, on the other hand, instances occurred of villages being attacked, though situated at a height of one thousand four hundred feet above the surrounding plain. The villages of Jemanguleva and Sarmaneva, north-west from Orenburg, and situated at this elevation, were attacked, the latter on the 14th October, the former on the 1st November; and in Jemanguleva seventy-three persons were seized in the course of twenty-three days; of whom fifty-five died; while in Sarmaneva the number attacked in four weeks was one hundred and thirteen, and the deaths nineteen.*

* Edinb. Med. Journal, July, 1831.

TREATMENT.

The treatment pursued in the Orenburg epidemic may be dismissed in a few words. The Medical Council of St. Petersburg had recommended the physicians of the districts where the Cholera might appear, to hold in view the practice recommended by the results of British experience in the East: and accordingly, after the disease was fully recognized, we find the practitioners of Orenburg withdrawing blood from the arm, and then administering scruple doses of calomel, with opium or other antispasmodics, and stimulating the external surface by friction, and the application of heat in every variety of form. And it is a pleasing fact, which the reports now before us fully substantiate, that wherever medical assistance was easily procured, for example in towns, the mortality of the

disease was in by far the greater number of instances comparatively low; while it was commonly very great in the small villages and other places where it was for the most part impossible to procure medical advice, till the disease was too far advanced to admit of much impression from the employment of remedies*.

Sir William Crichton observes that calomel and opium were largely tried at Moscow, but that the generality of the physicians there have come to the conclusion that *diaphoretics* furnish the most effectual remedy. He states that the Russian physicians had usually agreed in recommending *bleeding* at the commencement, and the committee of Warsaw declare that bleeding, practised *in time*, has been attended with very great success. Sir W. Crichton mentions warm diluents as among the most useful means of relief.

* Edinb. Med. Journal, July, 1831.

According to Dr. Darbal, a French physician at Moscow, who has transmitted a report to the Academy of Sciences at Paris, the only remedy that has been found efficacious is *heat* in high degrees. In his opinion, all other remedies are useless. He affirms, that, though in twenty hospitals, different and even opposite modes of treatment were employed, the number of deaths was nearly in the same proportion at all of them. He believes that it is not so terrible a disease as it has been represented, and that, if properly treated on its first appearance, it is not difficult of cure. He is one of those who imagine, with Dr. Jochnichen, that the emanations or atmosphere of the sick person form a focus of infection, which is only dangerous to those who are predisposed to imbibe the germ of disease through poverty, misery, drunkenness, debauchery, indigestion, and taking cold. Jochnichen remarks, that certain houses

have for some time proved focuses of infection, and that a great number of individuals have suffered through such a source; but that the destructive influence has disappeared when the police has taken measures to purify and render wholesome these particular spots. He adds, that *the epidemic chiefly raged in the lower classes, in low, damp, and filthy dwellings.*

We shall not dwell longer on the treatment practised in Russia, as it appears to have been entirely modelled on the Indian cure. In Nos. II., IV., XI., XIII., of the Appendix, will be found more information on the subject. We shall conclude the subject with an account given by Dr. Schnurrer of the method pursued at Bakou, a town inhabited by eight hundred Russians and twelve thousand Persians. At the onset of the disease, the Persians stripped the invalid, even in the street. The limbs, the trunk, and particularly the chest and shoulders, were well

rubbed and pinched. These manipulations were continued during two or three hours by ten people, and at the same time affusion of cold water was continually employed. He was then placed in bed, diluents were given to him until sweating was produced, and when moisture appeared on the skin he was regarded as out of danger. Nevertheless, during the following nine days he was restricted to a severe regimen of light food and to moderate exercise in the open air. The authorities provided vessels of water at the corners of all the streets and even on the roads. No one passed the night alone. The moment that a case occurred in the street, the passengers ran to assist in this process of friction and cold affusion.

CHAPTER IX.

Identity of the Russian and the Indian Cholera. Distinction between the common Bilious Cholera and the Spasmodic Cholera.

It will be necessary to afford some evidence of the connection between the epidemics, although few persons at present appear to entertain any doubts upon the subject. All the Russian Official Reports unite in showing that the disease is one and the same.

I believe that I may be allowed to state that Dr. Ashburner, of this metropolis, who has not only witnessed in others, but has suffered in his own person, the symptoms of the Spasmodic Cholera of India, declares that they are the same as those which have been above described in Russia*. Dr. Rus-

* This gentleman and Dr. Keir, without any communication, both describe the skin of the sick, in India and in Russia, to resemble the cold slimy touch of a frog.

sel*, who has spent many years in India, and has had abundant opportunities of observing and treating the disease, delivered the same opinion on hearing the symptoms enumerated by Sir William Crichton. The Report of the Committee of Warsaw (Appendix, No. XI.) agrees nearly with the Indian accounts.

Dr. Searle, who has very recently published a work on Cholera (1830), has since travelled to Poland, in order to compare on the spot the European and the Indian Cholera. Although his opinion has not yet been made public, we understand that he has expressed in letters to some friends in England his decided opinion, that the disease is the same in India and in Poland. We trust that his observations on the subject will soon be published in detail.

* This gentleman has been commissioned by our government to proceed to Riga and Dantzic with Dr. Barry and Dr. Hammel. We understand that he has already confirmed the remark by personal observation in Russia.

According to Dr. Schnurrer, physician to the Duke of Nassau, who has lately published a work on this subject, the symptoms of the disease have offered scarcely any difference in any of the countries which it has visited. He describes the matter thrown off as resembling *rice milk*, or starch*.

Dr. Riecke, who has also recently written a book on the same topic, believes that the disease is the same in all the distant journey which it has travelled. His list of symptoms agrees pretty nearly with those of Sir William Crichton and of Dr. Schnurrer†.

M. Gamba, the Consul of France at Teflis, in Persia, in a letter to the eminent surgeon, Larrey, thus relates the features of the disease. Death ensued sometimes in seven or eight hours. The patient loses his percep-

* Die Cholera Morbus; ihre Verbreitung, ihre Zufälle, die versuchten Heilmethoden, &c.

† Mittheilungen über die morgenländische Brechruhr, 1er Band. Stuttgart. 1831.

tion : presently vomiting and purging ensue ; he experiences violent colics and cramps ; then an icy coldness seizes the limbs. This account, and that given by Mr. Cormick (No. XII. of the Appendix), may be easily compared with the symptoms in India, and again with the symptoms in Moscow, as described by Sir W. Crichton, and in Orenburg by Dr. Sokolow.

We perceive that nearly the same remedies have been every where adopted. In Persia M. Gamba informs us, that *bleeding*, *calomel*, *laudanum* and preparations of ether, were the medicines employed. Every where also the disease has committed its principal ravages amongst the poorer inhabitants, amongst those who are subjected to inclemencies of weather, who are compelled to use severe labour for their daily support ; who obtain a scanty and often improper nourishment ; who are lodged in damp and ill-venti-

lated abodes, and whose clothing is insufficient and seldom changed. The camp-followers of our Indian army seem to have been most fatally affected by the epidemic; after them, in the gradation of suffering, follow the native troops; then come the English common soldiery, then the English officers, and, last of all, are found the civilians. Women appear less subject to it than men, and children less subject than adults. In Europe we perceive a similar order of exposure and liability. Every where in Europe the lower orders have been the chief sufferers: the number of remarkable persons and of nobility who have fallen victims has been extremely small; their names, indeed, might be easily enumerated. When such instances have occurred among the affluent classes, they might probably be explained by particular mental anxiety, or a state of predisposing bad health. The

soldiers of the conflicting armies in Poland have been amongst the chief sufferers ; we may easily imagine the privations to which they have been exposed. At Warsaw the Committee of Health announce, that very few persons of easy condition have been ill, and that the disease has expended its chief ravages on the poorer inhabitants of the low and thickly-peopled quarter of the city, which lies near the Vistula. At Riga, the sailors appear to have been most liable to the disorder.

One of the first circumstances which strikes us in the history of this disorder, is the name it has acquired, the term *cholera* seeming to imply that it consists of a redundancy or depravity of the bile ; whereas it appears that the secretion and excretion of the bile are entirely suspended, and that the matter evacuated by vomiting and purging is quite

of a different character. This is an inaccuracy, however, into which the ancients, as well as the moderns, have fallen, and is best elucidated by Alexander Trallian*. This ancient author describes three species of Cholera. In the most intense, there is no evacuation of bile; and he thinks the name might be more properly derived from *χολαδεις*, an old Greek word used by Homer to signify the bowels, than from *χολη*, bile. In the species next in degree, however, he says there is a great discharge of bile, and being attended with excruciating spasms like the former, obtains the same name. The third species is a simple bilious diarrhœa, without the spasms. In the disease as it occurs in ordinary practice in this country, most commonly in the month of August, one of the most prominent symptoms is certainly the

* Lib. VII. Cap. 14, 15, and 16.

discharge of a large quantity of bile, and it seems to be the middle species of Tralian*.

The common *bilious cholera* is a disease distinct from the *spasmodic cholera*. In India, as well as in Europe, the common bilious cholera is a disease well known, and not usually fatal. In the first, as the name indicates, the discharges are more or less coloured with bile, and the general commotion of the alimentary canal seems to arise from a superabundance of bile thrown upon it. In the spasmodic cholera, on the contrary, the discharges are generally whitish, and no hope is held out of recovery until they acquire a bilious tinge.

The common bilious cholera is also sometimes epidemic. It seems to have prevailed epidemically in England in 1669, and with still more severity in 1676. It has been

* Blane, Med. Chir. Trans., vol. x., part i., p. 134.

described by Sydenham; and that severe bilious epidemic bears some affinity to the present epidemic of spasmodic cholera:—‘vehement vomitings, and difficult and painful dejections of ill-conditioned fluids; agony, and inflammation of the intestines and abdomen, cardialgia, thirst, a quick pulse, often small and unequal, heat and anxiety, nausea and colliquative sweat, spasms of the arms and legs, fainting, coldness of the extremities, and other symptoms of equal danger, which terrify the by-standers, and kill the patients in twenty-four hours’*.

During the year 1826, six patients were received into the general hospital at Hamburg with the common bilious cholera, and only one died†. During the eight years from

* Sect. iv. chap. ii. Also *Epist. de Morbis Epidemicis*, 1671—1680.

† *Nachricht von dem Gesundheits-zustande der Hamburgischen Kranken und Versorgungshäuser, &c. von N. H. Julius, Hamburg, 1829.*

1816 to 1823 inclusively, one hundred and seven soldiers were received into the military hospitals of Malta, ill of the common bilious cholera, and only two died*. The mortality, as well as the violence of the spasms, and the colour of the discharges, all distinguish this affection from the more dreadful spasmodic one.

* Hennen, Medical Topography of the Mediterranean. London. 8vo. 1830.

CHAPTER X.

The Contagious Nature of the Disease considered. On the Circumstances which predispose to it, and the Means of obviating them.

WE shall begin with some of the evidence which relates to India. When Cholera appears in a street, it has frequently been observed to pervade almost the whole of the dwellings in it; and when it appears in a family, to affect several of its members successively. Cholera has been remarked to have travelled chiefly by the great roads, affecting the villages on either side of it, without perhaps extending to those situated at any considerable distance. The sixth regiment of cavalry having left Ellore, where Cholera did not exist, arrived at a place where it prevailed; and a squadron of the regi-

ment having been necessitated, from the loss of their tents, to take possession of an old pagoda in the village, for shelter, Cholera broke out in the corps at that place, and this squadron furnished almost every case of it. The prisoners, in a jail inclosed with a high wall, have escaped Cholera, while it prevailed all around them; and the inhabitants of certain hilly ranges have also escaped the disease. These have been said to have interdicted all intercourse with the people below. When Cholera is once established in a marching regiment, it continues its course in spite of change of position, food, or other circumstances. Its approach to a town has been traced from village to village, and its first appearance in the town has been in that quarter which was nearest the track of its progress. For instance, it approached the town of Salem from the west, visiting all the villages on that road. It was some days in

Shevapett, situated a quarter of a mile to the west of Salem, before it appeared in Salem itself; and it was several days in passing from Salem to Armapett, three-quarters of a mile eastward of it. Mr. Superintending-Surgeon Duncan states, that when Cholera appeared in the thirty-fourth regiment, on the route from Bellare to Bangalore, all the villages which they passed suffered from it immediately afterwards; and a native soldier, travelling from Bangadore to Nundidroog, at neither of which stations Cholera had appeared, passed through the camp of the thirty-fourth regiment while the disease prevailed, was attacked by it, and died shortly after reaching Nundidroog.

The sudden appearance and disappearance of Cholera, however unlike the progress of known infectious diseases, is not admitted as being irreconcilable with the doctrine of infection; especially if the disease be of sudden

invasion after the application of the exciting cause.

The evidence which has been adduced in favour of the infectious or contagious quality of Cholera, as it respects the intercourse between individuals, may be thus stated. The relations who have attended on people ill of Cholera, as well as the nurses appointed in military corps for that duty, and, in general, those whose employment has led them to be much with the sick, have been observed, in very many instances, to be attacked with Cholera during, or shortly after, their attendance. For instance, a soldier's wife is taken ill, and dies; her friend in attendance is also taken ill, but recovers; while the husband of the former is seized the same day at noon, and dies in the evening. Many such examples might be produced. The sick in hospitals, labouring under other diseases, have likewise been observed to be

attacked with Cholera, especially those who lay near the patients ill with that disease. Sometimes whole families have been swept off successively; servants have often been observed to sicken after attending their masters. The instances, however, above recited, are by no means uniform; they are, indeed, opposed by directly opposite experiences; but it is contended, that a greater proportion of people, occupied as above described, have been attacked with Cholera, than has been observed to be the case in an equal number of people who were not employed amongst the sick. It should be remembered also, that medical men, and hospital dressers and servants, being inured to the contact of sick, are less liable, on that account, to receive infection. The exact number of medical officers and servants who have experienced attacks of Cholera, during the prevalence of that disease in the hospitals in which they offi-

ciated, cannot be ascertained. It is known, however, that thirteen medical officers of this establishment have died of the disease, and that between fifteen and twenty suffered attacks of it, but recovered ; in perhaps every instance, the officers had been previously engaged with patients under Cholera. The circumstances of some of these attacks are very remarkable. The medical officer, in repeated instances, has been the only European in the corps or station who has suffered. Dr. Daun, and Mr. Assistant-Surgeon Gray, of his Majesty's eighty-ninth regiment, were both seized with the disease, after intimate intercourse with the sick ; and the two friends who attended the latter, during his severe illness, were also seized, while no other European officer of the corps suffered*.

* Scot's Report, Introduction, p. xlviii. In Numbers xvii., xviii., xix., and xx. of our Appendix will be found reports on both sides of the question.

The attention of Mr. Jukes was called to a case that had occurred in one of the apartments of the barracks of that fort appropriated to European troops ; this, owing to too late application for medical aid, soon terminated fatally : another case occurred a few hours afterwards, the subject of which was saved with much difficulty, and after much danger ; and in the course of six succeeding days, no less than nine cases occurred in the same apartment. The curiosity of Mr. Jukes was naturally excited to ascertain under what circumstances so much disease was produced, and, on examination, the ward appeared to be both badly ventilated and too much crowded with men ; the place was immediately emptied, scoured, and fumigated, after which no other case occurred.

The next testimony on this side of the question is that of Dr. Burrell, who says, in his report, dated Seroor, July 27, 1818 :—

‘As every epidemic, by accumulation of subjects, has a tendency to propagate its *virus*, I am cautious in reporting this disease not infectious. Almost every attendant in the hospital, in the short space of six days, has had the disease. There are about thirty attendants in the hospital.’

In order to afford some view of the contrary opinion, the authority of Mr. Assistant-Surgeon Whyte may be cited:—‘In the general-hospital here there were three Sepoys, who resided continually from the first appearance of the epidemic, inhaling by day and night, at every inspiration, mouthfuls of the infection. If the atmosphere was really loaded with contagious effluvia arising from the bodies of the patients in the hospital, the escape of these men (which has been complete) would be miraculous indeed; living, as they were, in the very midst of these *effluvia*, and so near their

' source. Allowing that the constant habit
 ' of doing so procured them an exemption
 ' from the influence of contagion, the same
 ' thing cannot be said of the friends and rela-
 ' tions who were attending upon the patients,
 ' and who used to assist the sick into and out
 ' of the bath, and in every other way; thereby
 ' exposed to be infected by the disease, whe-
 ' ther it is conveyed through the medium
 ' of the atmosphere or by touch; yet I have
 ' not known one instance of dooly bearers,
 ' friends and attendants of the sick, being so
 ' infected, nor have any of our hollalchones
 ' or hospital assistants suffered.'

Captain Sykes writes thus to Dr. Milne,
 from Punderpoor, 15th of August, 1818:—

' In the first place we see that it has made its
 ' way, independent of a permanent south-
 ' west wind, from Jaulna down to Pun-
 ' derpoor. Its effects were not instantaneous
 ' in the country; but its progress may be

‘ traced, by a slow advance, to from fifteen to
‘ twenty-nine miles a day, as if it had been
‘ communicating gradually by persons tra-
‘ velling from town to town. Its principal
‘ ravages about here appear to have been
‘ confined to the high roads leading from
‘ Punderpoor and the large villages in the
‘ neighbourhood, and I dare say it might be
‘ proved that it did not break out in any vil-
‘ lage until that village had communicated
‘ with a neighbouring place in which the
‘ disease existed. In my light company there
‘ were three or four men taken ill at once ;
‘ of course there were attendants from the
‘ same company upon these men. The
‘ disease went on increasing in that com-
‘ pany, and there have been more cases of
‘ Cholera in it than any other. One of my
‘ servants was attacked: it gradually ex-
‘ tended to five. An officer at Punderpoor
‘ had seven servants attacked one after the

‘other; the gentleman in the next tent had
‘not one. I have seen a similar instance in
‘our corps. I should infer, therefore, from
‘its running in particular companies of a
‘corps, or sets of servants, that as they attend
‘on each other, and constantly sit or sleep in
‘the confined space of a small tent, the disease
‘is communicated by absolute contact, or
‘from respiring the same air that a diseased
‘person has done. I am aware that there are
‘very strong arguments against its being in-
‘fectious, persons escaping who have been in
‘constant habits of handling the sick and
‘breathing the air of the Cholera hospitals.’

Mr. Surgeon Coates, in a letter to the Pre-
sident of the Medical Board at Bombay, says,
‘at Punderpoor it made its appearance at the
‘time of the great Jatra, and was spread
‘at once in all directions by the pilgrims
‘returning to their homes; the number of
‘deaths here was three thousand in a few

‘ days. The patients are described as being ‘ knocked down as if by lightning.’

Sir Gilbert Blane has justly observed, that the circumstance which most obviously distinguishes an epidemic arising from morbid poison engendered in the human body, from epidemics caused by affections of the atmosphere, whether consisting in *alterations of temperature* or in *contaminations from the soil**, is, that the progress of the former will necessarily be *progressive* and traceable to human intercourse, whereas the influence of the latter will as certainly be *contemporaneous* in situations more or less distant. It will be clearly perceived, by a careful perusal of the preceding history (and of the Indian Reports in our Appendix), that the spread of this malady has been strictly progressive, and evidently carried by human beings from one

* See, on Malaria as a cause of Cholera, Searle; and Mac Culloch on Malaria.

district to another ; nor is it conceivable that the requisites of temperature and contamination of the atmosphere necessary to prove any other than a contagious origin could have occurred at those spots and periods in which the disease showed itself in its progress by sea and land, as is historically described in the previous and subsequent narrative. This is nowhere more striking than at the Mauritius. This island is near three thousand miles from the other places at which the epidemic raged ; and can any mind be so constituted as to believe that a new disease of the identical nature of that which had ravaged all India, should have shown itself by mere accident at the very time when its appearance was in exact conformity with the supposition of its being imported by a frigate* ?

* See the clear statement of the subject in the account of the Epidemic Spasmodic Cholera of India, drawn up by

Another cause which has been brought forward to account for the remote cause of epidemics, besides those above mentioned, is the subterraneous mineral effluvia suggested by Sydenham. But how could such effluvia exhale from the earth in the progressive manner in which this disease extended itself? and how could such effluvia account for its appearing on board of ships at sea, or at remote spots where these ships arrived; the Mauritius, for instance, three thousand miles distant from India, while it was unknown at the Isle of Bourbon, a small neighbouring island, until after the Mauritius had suffered?

Mr. Orton has assigned a change in the *electricity of the atmosphere* as the immediate cause of Cholera; he has also insisted strongly on *sol-lunar influence*, in connexion

Sir G. Blane from the official and other correspondence, in the Medico-Chirurgical Transactions, vol. xi., part I.

with electricity. Dr. Tytler has supported the agency of a deleterious article of food as the existing cause; this is rice of a certain quality, known by the term of *oose* rice. We shall not pause to examine these opinions—not through disrespect to their ingenious authors, but because it will be more interesting to the public to trace the *manner* in which the disease travelled from place to place in Europe, and hence to decide for themselves as to its being communicated or not from individual to individual.

Cholera* first appeared on the frontiers of the Astrachan government on the 3d of July, on board a ship of war, which had arrived from Baku (three hundred and fifty miles down the Caspian), and lay sixty miles from Astrachan. Till the 20th of the month the

* From the Report of Dr. Solomow, in the Russian Official Documents, translated in the Edinburgh Medical Journal of July last.

disease was confined within the Sedlitooski Lazaretto, whither the vessel with the sick had been brought. But on that day four people were taken ill in the city, near the river Kutum ; and from this point the disease imperceptibly spread over the whole town, carrying off a great number of people. After the 27th it attacked the suburbs, then the nearest villages, and then gradually extended over the whole government. * * * In reaching Astrachan from Baku it passed over all the intermediate districts of the Russian territories. * * * The first places attacked after Astrachan were several Tartar villages in the immediate vicinity, at a distance of from two to four miles, the inhabitants of which were in constant communication with the town, and to which also many families fled out of it as the disease spread. On the 27th July it also appeared in the village of Tscherepacha, eight miles from

Astrachan, on the return of some inhabitants, who had been to the town in search of work, and one of whom was the first person taken ill. After the 29th it proceeded through the Kossack stations and the town of Eustacosk, on the highway to Moscow, up the stream of the Wolga; its extension in this direction evidently accompanying the fugitives from the places successively attacked. In the town of Eustacosk it spread with the arrival of a sick boor. On the 29th July a barge arrived at Tchernojar, one hundred and fifty miles up the Wolga, with several rowers on board, who were ill of Cholera. On the 8th August the disease began to prevail among the inhabitants, and then passed across the river among the neighbouring Kirglies, as well as upwards to the villages of Solodnikovsko and Vaisovka, in one of which the person attacked was a military prisoner, who had been exposed to the dis-

ease. On the 25th July the epidemic also began in Krasnojarsk, situated on the northern mouth of the Wolga, twenty miles from Astrachan; and it first seized a private of invalids and a girl of thirteen years of age, who had both recently come from that capital. On the 3d August it appeared in the estate of M. Nekrasov, ten miles from Krasnojarsk, and among the Algarine hills in the vicinity of the town, from which it finally extended down to the Cossack Cordon on the Caspian, between which and Krasnojarsk there is constant communication. While the disease prevailed in Astrachan, some fishermen were there from Makovsky and Schitnisky, two places on the shore of the Caspian, where the Wolga opens into it. These men, terrified at the progress of the epidemic, hastened home to place themselves, as they imagined, in security. But they had already imbibed the poison; some fell sick on

the way, others after arriving at their homes, and the disease soon spread throughout the community to which they belonged.

On the 2d August the salt depôt of Basinsk, in the Caucasian kingdom, ten miles off the highway, was subjected to the general pestilence. On the 1st of the month an Armenian, convalescent from Cholera, arrived at the house of a private of the depôt, who was taken ill and died next day, and other cases occurred afterwards. At the salt depôt likewise of Kijatska, twenty miles from Krasnojarsk, a private soldier was taken ill, who had been sent thither from Astrachan with medicines and instructions for the inhabitants in case the disease should appear among them, and various individuals were attacked subsequently.

Many gardens and farms in the neighbourhood of Astrachan remained exempt from the epidemic, having broken off all inter-

course with the diseased districts. In many villages, too, where similar measures of security were taken, the issue was equally fortunate, although the Cholera raged all around them; for example, in the lordships of Smirnov, Beketov, and Prince Dolgoruki, in Sarepta, eight miles from Zaritzin, and some other places. On the other hand the Kalucks, who, as soon as the disease appeared among them, left their sick comrades behind them, and repaired to pasturage-grounds fourteen miles off and more, did not in this way get rid of their fatal visitor—fresh cases occurred among the families who were first attacked.

At Astrachan many instances occurred where the greater part of the members of a family were taken ill in succession. Dr. Solomow cannot believe that *local* causes could have produced the epidemic, because the two seasons previous to 1830 had been

much more favourable than it to the extension of a disease of local origin, as the country had been then much flooded.

Wherever measures were taken to prevent communication in the Russian dominions, there the disease has been totally checked, or has made but little progress. Petersburg has not escaped, because a strict quarantine has not been observed between it and Moscow. The Moravian colony on the right bank of the Wolga, and several German colonies in the government of Saratov, around which the disease was violent, adopted the system of exclusion, and were also unhurt. At Caramala-Gubeewa some Russian peasants, living together, scarcely a hundred yards from the village, shut up their hamlet on the first report of the disease having appeared in their vicinity, and by enforcing a strict quarantine during the prevalence of the epidemic, remained in health. The large establishment

composing the Academy of Military Cadets, at Moscow, was preserved by a similar plan from the scourge which was so active on all sides of it.

Can we have a better proof of the contagious nature of the disease than that *insulation*, or separation from the sick, is almost universally found to preserve from the evil? Mr. Gomba, the French Consul at Teflis, in Persia, a person who probably was not devoted to any medical theory, writes to Baron Larrey, that the best and most sure mode of escaping from the calamity is *insulation and a residence in the mountains*. Of nine medical practitioners who were living at Teflis at the time of the invasion of the epidemic, four died during the first few days.

Let us hear the history of Mr. de Lesseps, the Consul of France at Aleppo, an individual who probably has never interfered in medical discussions. When the Cholera

approached that city in 1822, this gentleman retired, in company with all who wished to be of his party, to a garden at some distance from the city. His asylum was enclosed with walls, and was surrounded by a large fossé : there were only two doors, one for entrance, the other for going out. As long as the malady lasted, he admitted nothing from out of doors without submitting it to the precautions observed in lazarettoes. His colony comprised *two hundred* persons, and consisted not only of Franks more or less acclimatised, but also of several natives. *Not a single individual contracted the disease* ; while, at the very same time, within the city, four thousand beings perished in the space of eighteen days*.

At Dantzic we find that the disease has prevailed for several weeks, having probably

* P. F. Kerandren, Mémoire sur le Choléra Morbus de l'Inde. Paris, 1831.

been first imported by sea. It has not extended from Dantzic to any of the neighbouring towns or districts of Prussia. The Prussian government enforces a very strict quarantine. Can we imagine any noxious element in the air or in the earth at Dantzic, which should produce the disease in that sea-port, and confine it to that one alone of all the towns of Prussia? Is it not a more easy solution of the difficulty to presume that it was communicated to Dantzic by contagion, and that it has not yet travelled thence through other parts of Prussia, because the evil has been pent up, and has not been permitted to diffuse itself, being rigidly hemmed in on all sides by a strong medical and civil police?

The Cape of Good Hope has escaped the disease, and for no better reason that we can discover, than through the very rigid system of quarantine which was formed by the Dutch, and on the strict maintenance of which

they stipulated in their articles of capitulation.

It certainly appears that a large proportion of our medical officers in India are not disposed to concede a contagious property to the disease, and that in Petersburg and Moscow medical opinion is divided upon the subject, although the majority of medical men in Russia seem to admit that the disease possesses a certain limited degree of contagious influence. We must recollect, however, that the spirit of partisanship exists with almost as much strength on medical topics as on political ones; they who have once taken up a particular line of argument are not easily induced to abandon it, and opposition only tends to convert into a fixed principle an opinion which may have been originally formed at random or in haste. Many Russian physicians were at first inclined to deny the contagious quality, who have latterly been

compelled by better evidence to admit its existence.

Medical men may sometimes doubt the contagious power of a disease, because it has not affected themselves,—but this is far from being a conclusive argument. The long habit of attending the sick may probably render the constitution less susceptible of contagion, as it does of most other noxious impressions; the confidence engendered by long security, and by superior knowledge of the means of preserving health, may exert also a *moral* defence, which has at all times been found most efficacious against the attack of epidemics.

But the middle course of reasoning is, on this subject, probably the true, as well as the safe one. There is no necessity for embracing either extreme—for becoming entirely a contagionist, or an anti-contagionist. We may easily conceive that a disease may originally

be produced by local or other causes, which may not be endued with a self-communicating power at its birth, but which may, nevertheless, acquire the contagious element as it proceeds and gathers strength through the new circumstances which occur in its passage. Let us admit, if it be necessary, that the disease was not contagious in India, or let us suppose that its original sphere of contagion was so limited as to be scarcely sensible. Still that very limited sphere may be gradually extended to a certain degree, and the disease may yet finally remain less powerful in its contagious operation than most of the other diseases which are classed under that denomination. We speak of the laws of contagion, but who can define them? As many shades and varieties may exist in the contagious element, as in those fluctuating groups of symptoms to which the name of a particular disease is affixed.

Poverty, more than any other cause, appears to predispose the body to a ready reception of every epidemic disease, whether the origin of that epidemic is to be found in the influence of the atmosphere, or in the contagion communicated from one living individual to another. A scanty nourishment, an improper choice of food, the confinement of several persons to a narrow space, the want of fresh air, exposure to the inclemency of weather, clothing seldom changed, and the immoderate use of alcoholic liquors of a bad quality,—these, and many other painful accessaries, are too generally included within the condition of poverty, and enfeeble the frame to such a degree as to render it an easy prey to all the various elements of disease. The poor, too, are generally reluctant to acknowledge the existence of sickness in their own persons; they do not *humour* the first approaches of indisposition,

(as is sometimes the case with those who are placed in a situation to indulge in the luxury of complaint,) but are slow in admitting that their malady is serious, or that they ought to have immediate recourse to medical advice. Sometimes the dread of an hospital, and at others the fear of being separated from a family which depends upon their exertions for daily bread, prevents them from disclosing their actual situation, and a contagious disorder will thus often spread through several members of a family before its presence has been recognised in a single individual. The attention of a medical police, therefore, should always be directed, in the first instance, to those parts of a city or country where distress is most prevalent: the abode of want will generally be the focus of contagion. The affluent and the well-informed will usually adopt precautions against the evil, but the humble artisan and peasant

are indifferent to any topic remote from their daily subsistence, and will struggle on to the last moment, while the seeds of disease are already germinating on a too prolific soil. In Russia a great number of the lower orders appear to have fallen victims to a blind ignorance which withheld them from making their complaint known until it was too far advanced to be capable of receiving useful aid.

Should a disease of this nature make its appearance among us, it will be in the highest degree incumbent on the authorities of every town and district to circulate, as widely as possible, the *symptoms* of the disease, in order that its first invasion may be instantly noticed, and that no time may be lost by the eye-witnesses in communicating the same to medical practitioners appointed for the express purpose of immediately visiting and prescribing for them, and of superintending their conveyance to an hospital, where it is

practicable. The regulations acted upon at Moscow, and enjoined by the authorities of Nidjni-Novgorod (as detailed in our first chapter), furnish a very good system of conduct on such an emergency. Above all, every sacrifice must be made by the inhabitants to establish a temporary hospital on an eligible situation, at a moderate distance from the town; and any pecuniary contributions levied for this purpose on the affluent would abundantly repay them, by the exemption which it would probably afford from the visitation of the evil.

We should be the last to create unnecessary alarm, but it must ever be prudent to be on our guard, and to arrange our plan before danger is actually at our doors. Then all would be confusion and dismay: it is only in the tranquil moments of security and health that a proper provision can be made for the future; and if that dreaded future

happily fails to arrive, nothing has been lost, nothing has been mispent. Such foresight is the only means of inspiring us with the confidence, the firmness, and the ease of mind, which, in times of pestilence, are the surest shield against contagion, and the best nostrum of prevention.

We shall insert, in this place, as very applicable to any period, when apprehensions are entertained of an approaching epidemic, the following remarks of the late Dr. Ferriar.

‘ When we examine the history of some epidemics, of the plague of Marseilles, for example, or the late fever in Philadelphia, it appears that those disorders have grown by neglect, and have disappeared before vigilance. While the ravages of contagion are confined to the more unprotected class of the poor, the opulent and the busy, far removed from the sight of misery, little suspect the horrors with which they are surrounded.

Their attention, when at length roused by the approach of danger to their own thresholds, often proves prejudicial at first, because it rises to alarm and panic. It is then, that fear, overpowering every principle and every affection, prepares new dangers, by the extravagant selfishness of its exertions.

‘ The sick are sequestered from every means of relief, the dead are allowed to putrefy in heaps, or are scarcely covered from the sight of the survivors, while the suspicion of infection, equivalent to a sentence of death, pursues every one who has paid the coldest offices of charity to the sufferers. Under this dominion of inhumanity, destruction is carried to its utmost height, till the very extremity of danger excites men to counteract it. From the moment that the sick are treated with kindness, instead of being avoided with horror—that houses are purified, instead of being shut up ; and that

the dead are interred at a sufficient depth, the pestilence, of whatever nature, begins to decline, and then gradually ceases. Less alarming epidemics may, therefore, be expected to admit of still speedier alleviation, when they do not depend upon imported contagion, but arise from such local wants and grievances as have been specified in the preceding observations.

‘ It is obvious, that much sickness among the poor arises from errors or defects in their lodgings and clothing. These mischiefs may be partially corrected by occasional subscriptions, and the interference of the opulent in times of alarm and danger ; but as soon as the hand of charity is withdrawn, the same evils recur.

‘ The only method by which the poor could be provided with clean and healthy habitations is the erection of public lodging-houses, on the plan of barracks, or caravanseras.

Great numbers of the labouring poor, who are tempted, by the prospect of large wages, to flock into the principal manufacturing towns, become diseased by getting into dirty, infected houses, on their arrival ; others, from want of connections, waste their small stock of money without procuring employment, and sink under the pressure of want and despair. If those unfortunate persons had access, on their first arrival, to a public institution, where they could be lodged in clean, airy rooms, and where their residence would quickly become known, they would be saved at once from the danger of disease, and the hazard of ruinous idleness. The number of such victims, sacrificed to the present abuses, is incredible*.'

We perceive that nearly all the governments of Europe have established quarantines ; even the government of Bavaria has

* Medical Histories and Reflections, vol. ii. p. 199.

lately followed the example. Austria has drawn a sanitary cordon between Galicia and Hungary ; and amongst the governments of Europe, however contrary to their interest, the question of contagion is no longer agitated.

After carefully reviewing the various statements and reasonings on the mode in which this disease is propagated, and of the means by which it may be averted, we cannot avoid arriving at the conclusion, that the disease in India was *probably* communicable from person to person, and that in Europe it has *undeniably* proved so. Nevertheless, we must allow that its contagious power is more *limited* than that of the plague, and of some other disorders styled contagious. Its attacks are chiefly confined to the lower classes, and it seems, in a few words, *to require a particular disposition to receive it*. What that disposition is, has been repeatedly mentioned

in the preceding pages, and will be further illustrated in the Appendix.

With respect to merchandise, a general opinion is entertained in Russia that goods are not capable of propagating it. This subject, however, has hitherto elicited little save negative evidence. We know how strongly commercial and even political feelings are arrayed against a proper circumspection on this head. Two of the most prudent and economical governments in Europe have established a quarantine on merchandise, and this circumstance alone should be sufficiently strong to induce others to adopt the same caution, because these are two of the states most near to Russia, and most likely to have obtained ample and correct information. One remarkable fact in favour of its propagation by goods has lately been published by the Norwegian government, which declares that, out of one hundred

and sixty-nine deaths at Riga, in three days, an eighth part had been *carriers of hemp**.

Medical men are usually very reluctant to admit any existence which is not actually visible to their senses, and contagion, accordingly, is a principle which they have always been slow to admit in an old disease, and still more tardy in granting to what may be termed a new one. Dr. Macmichael has shown how much ingenuity was wasted, in every possible explanation, before even the small-pox was allowed to be contagious, a fact of which Sydenham does not seem to have been aware†.

* This has been denied at Riga.

† On the Progress of Opinion upon the subject of Contagion. 1825.

CHAPTER XI.

*Narrative of the Progress of the Epidemic from 1817
to the Present Time.*

IN the month of August, 1817, at Jessore, about a hundred miles to the north-east of Calcutta, the pestilence arose; spreading from village to village, and destroying thousands of the inhabitants, it reached Calcutta early in September. It extended thence into Behar, depopulating many large cities, until the inhabitants fled to other spots. Benares, Allahabad, Goruckpore, Lucknow, Cawnpore, Delhi, Agra, Muttra, Meerat, and Bareilly, have all suffered in succession; and it is remarkable that it did not appear in these districts at the same time, but leaving one, it soon showed itself in another.

At length it appeared in the grand army, first at Mundellah, then in the Jubbulpore

and Sauger districts. From thence it spread to Nagpore, and continued its course over the Deccan in a violent degree. At Hussin-gabad its ravages were terrible for several days; and taking its course all along the banks of the Nerbuddah, it reached Tannah. Visiting the noted cities of Aurungabad and Ahmednugger, it spread to Poonah; from thence to Panwell, in the direction of the coast, where it extended to the north and south, reaching Salsette, and arrived at Bombay in the second week of September, 1818, one year after its first appearance at Calcutta*.

While this was passing in the west of the peninsula, the epidemic was making the like progress to the east and south, progressively

* It attacked in turn every division and almost every corps in the army. It appeared in the centre division of the field army on the 18th or 19th of November, and finally withdrew in the first days of December, having destroyed within twelve days three thousand men out of ten thousand. Some have estimated the loss at five thousand, and even at eight thousand.

spreading along the whole Coromandel coast. In less than two years it had embraced a space from the most northern parts of Indostan to Ceylon, and from the Indus to China, and had also made its appearance on board vessels, both in harbour and at sea.

Destructive as it proved to our army, it was still more fatal to the natives. While thousands of the latter were perishing by the epidemic in a district near Bombay, only six European soldiers died of it. Through the whole progress of the disease we may perceive the preservative influence of good nourishment, good clothing, good shelter, and freedom from extreme fatigue.

In some situations in India the climate exceeds that of many parts of the world in salubrity and regular temperature: sickness and endemic disease have seldom prevailed: yet from the Nepaul range of hills, running in a line with the snowy mountains which sur-

round the beautiful valley of Catmandoo, to the sandy desert plains extending from the Indus along the Ganges and to Cape Comorin, did this epidemic extend its ravages.

The disease is said to have varied perceptibly with the changes of temperature, and as these changes took place, it seemed capable of operating powerfully upon man and beasts, in the grand army a number of cattle died in the most sudden and unaccountable manner. The indigent and naked part of the lower order of natives seemed to be principally affected by the epidemic influence, such as had been confined to particular parts of India, and had never travelled elsewhere; whilst those, on the other hand, who had learned how to evade the severities and vicissitudes of climate escaped the accumulated sufferings and aggravated forms of the disease*.

* Mr. Corbyn's Letter to Sir G. Blane, Med. Chir. Trans. vol. xi.

It arrived at Madras in October, 1818: From the Coromandel coast it seems to have been transported by sea to Ceylon, in the capital of which island, Candy, it broke out in December, 1818, with even more severity than it had manifested on the Continent. It commenced on the coast, and spread itself gradually over the interior. It appears to have been imported from Palamcottah, a town on the opposite side of the strait, which was at that time suffering the visit of the pestilence.

Dr. Davy, a medical officer well known in the scientific world, mentions in his report, that it had prevailed there from January, 1819, to June of the same year; that it appeared quite unconnected with the direction of the wind, with the dryness or moisture of the air, with heat or cold, with elevation or lowness of situation, with great salubrity or unhealthiness of climate, or with any sensible changes in the state of the atmosphere.

He remarks, that there was, in some of the cases which he dissected, a flaccidity in all the muscular parts after death, as in animals killed by electricity, or hunted to death ; there was also a tenderness of the muscular fibres. He remarks, too, that there was no difference in the colour of the arterial and venous blood, both being of the dark hue of the venous ; and there was no instance of a buffy coat on the blood that was drawn. He analysed the expired air of the sick, and found that it did not contain more than one-third of the carbonic acid contained in the breath of healthy subjects.

The total number of the cases in the army on this station, from the 21st December, 1818, to the 21st December, 1819, was four hundred and seventy-seven, of whom two hundred and seventy-four were discharged, two hundred and three died. Mr. Assistant-Surgeon Whitfield reports, that of nineteen

gun Lascars who fell under his care at Colombo, from the 21st to the 28th of February, nine died and ten recovered, and that of sixty-five inhabitants of Negombo, from the 23d of March to the 1st of April, nine died, fifty-six recovered. His practice was to bleed, and to give 'opium in a solid form, with or without calomel.' Mr. Staff-Surgeon Marshall reports from Candy, that, of fifty cases which had occurred, forty died.

The disease did not show itself at the Mauritius until after the arrival of the *Topaze* frigate from Ceylon, in the autumn of 1819. When that frigate left Ceylon, the disease was raging there, and there is no good evidence of its having been known at the Mauritius before that period. On the subject, however, of the importation of the disease into this island, exists a variety of conflicting facts and opinions, which do not seem very important, since it is, at all events, clear, that

the disease had not been *epidemic* at Mauritius before the arrival from Ceylon.

Little is said of the civil practice, except that one of the French practitioners stated, that he found great benefit from the administration of repeated doses of two drachms of the sulphate of magnesia. The mortality in the civil hospital was ninety-four in one hundred and thirty-three admitted. The deaths in the town, by the report of the French practitioners, were one hundred and ninety-four in four hundred and forty admitted.

The principal medical officer denies its being contagious, and ascribes the appearance of the disease to the unusual degree of atmospheric heat. Another medical officer is of opinion that it is contagious, and that it fell most heavily on the attendants of the sick. From the great alarm of the inhabitants, it is evident that they were impressed with the same belief, and did not doubt that

it had been imported by the *Topaze* frigate. Of seventeen who were taken ill of this disease on the passage, three died, by the report of the surgeon, besides two previously ; the whole number of deaths by that disease being stated at five on board for the preceding eighteen months. According to Mr. Crombleholm, 20,000 inhabitants became the victims of the disease. According to Governor Farquhar's report, only 7000.

The Isle of Bourbon is distant only forty leagues from the Mauritius ; it enjoys the same fine climate, and has a continual intercourse with it. The Governor took every measure to cut off the communication, on the news of the epidemic ; and there is reason to believe that he might have succeeded, if his intentions had not been frustrated by the clandestine disembarkment of some negro slaves at a little distance from the town of St. Denis. At that town it appeared on the

14th of January, 1820, and the slave-vessel had only quitted the Mauritius on the 7th of the same month. The regulations of the Governor rendered the disease less destructive than it would probably have otherwise been ; he did not suffer it to be diffused beyond the city*. Only two hundred and fifty-six persons were attacked, and one hundred and seventy-eight died.

From Malacca it invaded the islands of Sumatra and Penang ; at Singapore it was felt in October, 1819. It was introduced into Bangkok, the capital of Siam, and there destroyed forty thousand inhabitants ; according to Moreau de Jonnés, it was brought thither by the Anglo-Indian vessels which pass up the river to that city.

In 1820, we find it in Cochin-China and Tonquin. In December, of the same year, it entered China, and was first severely ex-

* Moreau de Jonnés. Rapport sur le Cholera Morbus.

perienced at Canton. The system of inland navigation existing in China assisted its diffusion through that vast empire, in which a total indifference to precautionary regulations seems to have reigned. At Pekin, in 1821 and 1822, the mortality was so excessive, that the government was obliged to furnish coffins, and other funereal apparatus, for the use of the lower classes. Dr. Riecke has given a curious conversation which passed between the Russian and Chinese authorities, at a subsequent period, on the subject of quarantine.

The Russian director of the customs at Kiachta applied to the dzargutschey, the chief civil officer on the Chinese frontier, to establish quarantine institutions against the Cholera. The latter replied, that police precautions would be useless for his country, on account of its very numerous population, adding, with the greatest coolness, that this disease would give their empire so much the

more room the more people it carried off. This notion he supported by the remark, that a sickness of this kind knew its victims, and left others untouched ; that it selected such as live in filth and intemperance ; and that, on the contrary, a person of undaunted mind, with cleanliness and moderation, was safe from its attack. On this subject he referred to the present Emperor of China, declaring that Pekin owed its exemption from the disease solely to the firmness of his imperial majesty, who was pleased to say to those about him ; ‘ Do not suppose that this disorder is more powerful than yourselves ; the pusillanimous alone die of it.’ From that moment they all took courage, and nothing was left for the disease but to quit the capital. ‘ But that is nothing,’ he proceeded ; ‘ I will relate to you another case, which occurred in the year 1070. A disease broke out at Pekin of a peculiar cha-

‘racter, for it affected the tails of those
‘who quitted their houses and abode in the
‘open air. In a short time it consumed
‘half the tail, and the immediate death of the
‘owner was the consequence. When this
‘was reported to the then reigning emperor,
‘Tschang-Lung, he declared emphatically
‘that he would not hear any thing of such a
‘disorder. Thus his supreme will expressed
‘with firmness, and thereupon made public,
‘had such an effect upon the malady that it
‘left Peking forthwith.’ While the dzar-
gutschey was detailing these circumstances,
he fixed his eyes intently on the director,
and perceiving in his looks a certain distrust
of his statements, he added, with a smile,
‘You must believe, at any rate, that fear
‘enervates the mind, and that the latter
‘has a decisive influence upon the body.
‘Whether you believe my story or not, we
‘must listen without terror to the report

‘ of the disease at Kukuchoton, and then it
 ‘ will positively not visit us.’ This was in
 the summer of 1827; the disease actually
 proceeded no further in that direction.

The Isle of Java was attacked in April
 1821. It broke out first at Samarang, and
 passed along the coast. The city of Ba-
 tavia is estimated by the Dutch authorities
 to have lost seventeen thousand inhabitants;
 and the whole island experienced one hundred
 and two thousand deaths. It extended to
 the mountains in spite of their elevation, and
 also to the central districts. Java was again
 a sufferer—since, in 1826, the Dutch troops
 arrayed against the insurgents are stated to
 have had their efforts much relaxed through
 the oppression of this calamity. In 1821, the
 Isle of Borneo also suffered; all the Dutch
 garrison at Pontianah was seized, and the
 Resident, who escaped unhurt, was the only

individual capable of administering remedies to the others.

Considerable trade subsists between Bombay and Muscat in Arabia. In July, 1821, Muscat received the contagion from Bombay. The Iman estimated the deaths at Muscat at ten thousand. The evil soon passed into the Persian gulf. In Bassora, according to Mr. Kennedy, eighteen thousand individuals perished, of whom fourteen thousand died in a fortnight. At Busheer, which carries on a large commerce with Bombay, a sixth part of the inhabitants died. The bazaars were closed here, the houses abandoned, the bodies were left unburied, and that part of the population which escaped the first attack sought safety in flight*.

Shiraz is in constant communication with Busheer. In September the disease arrived.

* Moreau de Jonnès.

One of the first families which was sacrificed, was that of the Prince Royal of Persia, who was at that time Governor of the City. In twenty-four hours he lost his mother, one of his children, and some other inmates of his abode. A few days afterwards he quitted the city, and then began a dreadful scene of anarchy and sickness. The Armenians are said to have suffered least; the deaths are variously stated to have been, during the first few days, 6000 or 16,000. The British Resident, Mr. Rich, went to bed in the evening slightly indisposed, and was found dead the next morning. *Yerd*, between Shiraz and Ispahan, lost a fifth of its population. Ispahan suffered but little; the approaches of winter are by some supposed to have checked it here, and by others the prohibition of the caravans of Shiraz from entering the walls. At Tauris, in 1822, only a twentieth

part of the citizens are supposed to have perished ; it raged there during twenty-five days. In its further progress in Persia it became less mortal. Tcheran is said to have escaped by prohibiting the entrance of the caravans, through the advice of Dr. Martinengo. It is from the communication of the maritime provinces of Persia and of Russia that we are to date the unhappy entrance of the disease into Astracan—a Russian city on the banks of the Volga, in the autumn of 1823.

Bagdad is stated by Dr. Meunier to have had a third of its population attacked ; he believes that it only affected those who approached the sick, and that great heat and defective ventilation favoured its virulence. A Persian army, which was marching to Bagdad, retired in dismay before this formidable enemy.

In November, 1822, it broke out in Aleppo, and remained there fifty days. The

cold seems to have checked its progress ; but in the June of 1823 it sprang up anew in Latakia and Antioch. At Tripoli, a city which is well ventilated, only thirty-one persons are said to have been attacked out of fifteen thousand.

The Pacha of Egypt appears to have preserved his subjects from the contagion by rigorous precautions.* During several years the pestilence travelled through China, and reached the frontiers of Siberia in 1826. Persia was again a sufferer in 1829 and 1830.

In the spring of the year 1830, the first authentic accounts of the Cholera Morbus having appeared in Persia were received by the Medical Council at St. Petersburg. It spread itself from the province of Corasan to Tabrez, the residence of Abbas Mirza, where

* Moreau de Jonnès, Rapport sur le Cholera Morbus, 1831, p. 272.

it made great havoc. A number of the Russian mission to that prince fell a sacrifice to it, and Prince Dolgorousky, the Russian minister at the same court, was saved with great difficulty from a serious attack.

In the beginning of July the disease penetrated the Russian provinces of Schirvan and Bacou, from whence it spread by land as far as Tifflis, and by sea from the port of Bacou to Astracan.

It broke out in these two last-mentioned towns nearly at the same time, that is to say, on the 20th of July. It appears from the accounts we have received, that neither at Tifflis nor at Astracan any precautions were taken to prevent its spreading further, probably from its not having been thought contagious, so that it extended with rapidity from Tifflis throughout Georgia and the province of Caucasus, always following the principal roads.

At its first appearance at Astracan (which took place soon after the arrival of a vessel from Bacou, on board of which eight men had been seized during the voyage with the Cholera, and had died of it), thousands of people, employed in navigating the Volga, together with fishermen of that river, made their escape from the town ; the first re-ascending the Volga, the others going up the river Pural or Jaik. The disorder showed itself at Gouriéff on the 26th of July ; at Ouraesk on the 3d of August. Let us now observe its course along the Volga, the great line of communication by which the disease penetrated into the interior of Russia. At Senolayerisk the Cholera broke out on the 22d or 23d of July, at Krasmojar the 25th of the same month, at Tzaritzen the 6th of August, at Doubooka and Saratoff the 7th, at Khoalinsk the 19th, at Lamara and Nijni Novogorod the 27th, at Kostroma the 3d of September, at Zaro-

staff the 6th, and at Rybinsk the 11th of the same month. In all those places the first victims of the disease were either navigators of the Volga, or individuals arrived from places where it already raged. A cossack, who had been sent the beginning of August from the station named Katchalinskara on the Don, to buy provisions at Doubooka on the Volga, died of the Cholera on the 7th, after his return to the station. After that circumstance, the malady spread successively through the different Cossack villages along the river Don. Without enumerating all these, suffice it to say, that the first deaths from Cholera at Novetcherkash, the principal town of the Cossacks, took place on the 18th of August; at Kastaff, its ravages began some days later; and on the 9th of September it had penetrated as far as Jagaurog. A great number of persons of all ranks escaped from Saratoff (a town containing forty thou-

sand inhabitants), and took refuge in the next government of Peusa ; but the Cholera did not fail to follow them, and commenced its depredations in that province on the 13th of August. The first death at Kasan was on the 9th of September, an individual who had come there from Nijni Novogorod. It has not been exactly ascertained who was the first individual who died at Moscow of the disorder, as most of the physicians of that city did not believe in its having visited them, consequently no exact information was then taken of those who were attacked with it. There is, however, reason to believe that the first victim was a student, who had leave of absence from Saratoff, and whose servant died on the road thence to Moscow.*

The disease broke out at Nicolaëff on the arrival of an infected vessel ; it passed into Cherson, Kieff, Podolia, and Volhynia. The deaths have been in these provinces more

* From the Report of Sir William Crichton.

than half of the number attacked, up to April.

A considerable portion of the mortality in Russia is to be ascribed to the rash indifference of the national character, from which cause most of the invalids did not apply for succour till too late.

Moreau de Jonnès has taken pains to prove that the disease was imported into the Russian province of Orenburg by the *caravans* which arrive there annually from Kiachta or Boukara, and which are sometimes composed of from three to four thousand camels, and of as many men. These caravans transport across the steppes of Boukara the merchandise of China, Thibet, Caboul, and Indostan, countries which have been above twelve years the prey of this pestilence.

At Nijni Novogorod the evil commenced immediately after the great fair, where nearly one hundred thousand traffickers are said to assemble with the productions of Asia.

The emperor was desirous of fumigating the tea and raw silk at Moscow ; but the extraordinary Committee dissuaded him, on the plea of the injury which those articles would receive*. Severe precautionary measures were continued at Moscow until the end of April, after the disappearance of the disease, because the example of Kieff proved that the disease may revive at the very moment of its apparent extinction.

On the 24th of May, 1831, the disease broke out at Polangen, a port about ten leagues from Memel. On the 25th it appeared at Riga, in a northern continuation ; this is well known to be the principal commercial port of Russia. Mittau and Liebau soon

* The Committee published a declaration, that certain learned foreigners, such as Moreau de Jonnés and Gravier, disbelieved that goods could communicate the infection. But the former gentleman has recently taxed the Committee with inexactitude, as he is decidedly of a contrary opinion, and thinks that the merchandise conveyed by caravans has often propagated it.

contracted the disease. At Riga, fifteen labourers employed to open merchandise are said to have been suddenly seized. Dantzic shared the fate in May. Of two hundred and eighty-eight deaths there, up to the 25th of June, only fifty-three were females.

Not least among the evils of the war now pending between Russia and Poland has been the new strength added to the disease in that part of Europe. It attacked Lublin towards the end of last March. On the first of April, all the hospitals and lazarets of Siedlec were crowded with Russian soldiers, suffering under this malady. On the 10th of April it disclosed itself amongst the wounded and the prisoners who were conducted to Praga, a suburb of Warsaw, separated from the city by the Vistula. The same day it appeared in the Polish army, in consequence of the battle at Iganie,—where the conquerors won a victory too dear, since the spoils of the

dead, or the contact of prisoners, communicated to them a new enemy. The Committee of Health of Warsaw proclaimed, on the 14th, that the disease could not be communicated by contact nor by garments: their inclination governed their opinions, but the governor acted more wisely in closing the communication with Praga. On the 27th of May, the Central Committee of Health rated at one hundred and forty-two the number of persons affected with cholera in the hospitals of Moscow; but we have no correct means of ascertaining the number of private persons ill in their own dwellings at the same time. To the 5th of May, two thousand five hundred and eighty cases are said to have occurred in the city and the camp.

The amount of cases at Mittau, up to the 20th of June last, was one hundred and thirty-six—of which sixty-six had proved fatal, and nineteen had recovered.

Some letters from St. Petersburg of the date of the 22d June announce, that the cholera was raging violently at *Nijni Novgorod*, and that orders were expected to be sent thither to postpone the great annual fair held at that place; but the intelligence has not yet been confirmed.

The Board of Health at *Liebau* announced on the 18th of June, that they should publish no more lists, as no cases of this disease at present remain there. Information equally encouraging has reached us from *Riga*. The total number of cases, up to the 23d of June last, had been three thousand two hundred, the deaths had been one thousand four hundred and eighty, and the recoveries one thousand two hundred and seventy-two. The proportion of recoveries to deaths was becoming much more numerous, and the disease was, therefore, considered less malignant. The occurrence of the Whitsun holidays had

caused a temporary augmentation of new cases, from the indulgence in spirits, and other irregularities incidental to a popular festival.

It is with deep regret that we are compelled to close our melancholy narrative, not with the brighter intelligence just quoted, but with a new cloud. The capital of Russia is, at length, a prey to the disease which has so long harassed its provinces. A strict quarantine on *persons* had been established between Petersburg and Moscow, but *goods* were suffered to pass freely from the latter place to the former. The exemption of Petersburg from the disease has been quoted as a proof that goods cannot disseminate it. We are far from presuming to affirm that they can, but the *possibility* of such dissemination is not diminished by this last addition

to the catalogue of victims. In such cases, it will be always most wise to err on the side of caution, and, whatever may be the result, our country will always have reason to be grateful for the most rigid checks, however heavily they may press on individual interests.

On the 26th of June last, the disease appeared at St. Petersburg. In the five first days, twenty-six cases occurred. It is stated to have worn a mild character. One letter states, that from fifty to sixty persons had died of it during a late week. No foreigner of note had contracted the disease up to the 1st of July. The population of St. Petersburg were in great alarm, and the Imperial family had retired to Peterhoff. At Cronstadt, on the 1st of July, two prisoners died of the disease, and on the 2nd, six or eight fresh cases occurred there.

Let us hope that this last event, penetrating

to the heart of Russian councils, may have an effect, not remote, on the termination of old hostilities, and on the prevention of new ones. A general, long, and steady peace is the most powerful remedy of epidemics, as war is their most frequent origin; in peace, and its happy train of consequences, is to be sought the moral *specific* for a disease which too often baffles the restorative efforts of nature and of art.

POSTSCRIPT.

Our government has just received a letter from Dr. Russell, at St. Petersburg, dated the 1st of July. That gentleman thus expresses himself:—‘After a careful examination of all the symptoms of these cases in different stages of the disease, I do not hesitate to state my unqualified conviction of its perfect identity with the Indian Spasmodic Cholera.’ Dr. Barry writes to the same effect.

We have reason to believe that the introduction of the disease into St. Petersburg has been mainly owing to the very imperfect and negligent manner in which the quarantine has been maintained.

APPENDIX.

No. I.

Brief View of the Principal Epidemics which have ravaged Europe.

Soon after the establishment of the Order of the Garter by Edward III., a sudden damp was thrown over this festivity and triumph of the Court of England, by a destructive pestilence which invaded that kingdom, as well as the rest of Europe, and is computed to have swept away near a third of the inhabitants in every country which it attacked. It was probably more fatal in great cities than in the country, and above fifty thousand souls are said to have perished by it in London alone. This malady first discovered itself in the North of Asia, was spread over all that country, made its progress from one end of Europe to the other, and sensibly depopulated every state through which it passed. So grievous a calamity, more than the pacific disposition of the princes, served to maintain and prolong the truce between France and England.

According to Freind, this dreadful disease, which has been too appropriately named the *Black Death*, travelled from the Indies over all the world, and destroyed a fourth part of mankind. In the East it lasted three

years, and was more mortal. It sometimes wore the form of a continued fever, accompanied with spitting of blood; and at other times that of a continued fever, accompanied with carbuncles and abscesses, especially of the groin and armpit. The victims usually died within three or five days from the first seizure. An account of it is to be found in the works of an early medical writer, Guido de Canliaco, who resided at Avignon during the raging of the pestilence, and was himself confined six weeks by it*.

From this scourge of the fourteenth century we shall pass on to the epidemics of the latter part of the sixteenth, the seventeenth, and the eighteenth centuries, omitting to notice some intermediate visitations of the plague. We shall avail ourselves of the epitome drawn up by Dr. Sims.

1. The first epidemic constitution was as follows: The years 1590, 1591, and 1592 were all exceedingly dry, as was part of 1593; afterwards very rainy weather until the end of 1597. In 1593 the plague killed eleven thousand five hundred and three in London; the same year it was prevalent in Alcmäär. A catarrh prevailed in 1597. The rainy weather began in Florence in 1592, during which a pestilential fever raged there, attended with a whitish tongue and an inflammation, with ulcers about the throat and mouth.

2. There was, in 1598, an excessive heat and drought, which continued next year; 1600, a severe winter;

* The bodies of those who died in London were buried at the Charterhouse, or Charter-House, on the spot which is now the playground of the boys of that eminent school.

1601, a drought of five months continuance; 1602, a cold spring and summer, cold dry harvest and winter; the rest of this constitution very rainy, until the end of 1608, except seven weeks frost in 1607. In 1603 the plague was imported from Ostend, where, and in the Low Countries, it raged much; and killed thirty-six thousand two hundred and sixty-nine in London.

3. In 1609 three months rigorous frost, wherein the Thames became like a solid highway; 1610, an excessively hot, dry summer, as were those of 1611 and 1612, 1616, 1617, and 1619. The winters of 1614 and 1615 great frost and snow; the rest of this constitution wet until the end of 1624. In 1609 the plague broke out in Alcmear, as also in Denmark. In 1610 the Hungarian fever commenced in many places, and made great havoc for several years, so as often to be denominated a plague. About the same time the malignant sore throat is supposed to have commenced in Spain, where it killed incredible numbers. In 1611 the plague is said to have destroyed two hundred thousand at Constantinople. In 1614 the most fatal small-pox spread all over Europe. In 1618 the sore throat broke out in Naples, where it continued its ravages for twenty years; it was preceded by a similar disorder among cattle. In 1618 the plague existed in Bergen. In 1619 it broke out in Denmark and in Grand Cairo.

4. In 1625 a hard frosty winter, summer wet and hot; 1626 and 1627 excessively hot summers; 1630 and 1631 a great drought; the other years wet until 1634. In 1625 the plague killed thirty-five thousand four hundred and seventeen in London; it raged in

Denmark both in 1625 and 1629, as also in 1625 in Leyden. In 1632 inflammations of the jaws prevailed, with an erysipelas in one or more parts of the body.

5. In 1634 an excessively frosty winter; 1635, 1636, 1637, and 1638 very hot and dry summers; then very rainy years until 1643. In 1635 the plague in Leyden, and the camp fever spread all over Germany. In 1636 the plague was in London, whereof died thirteen thousand four hundred and eighty; in 1637 the plague in Denmark.

6. The years 1643 and 1645 were remarkable for hot summers, followed by inconstant rainy seasons until 1650. In 1643 a fatal malignant fever was spread by the armies all over England; 1644, a malignant epidemic fever in Denmark; a similar fever in England, in which there was a roughness and sliminess of the throat and jaws, with pain, but scarcely any swelling or inflammation: it seemed only a mere defluxion, by which the sick seemed choked, and for which astringent gargles were useful. In 1650 a general catarrh prevailed.

7. The years 1651 and 1659 had both very hot summers, and proved mostly dry; thence to 1665 very wet. The winters of 1651 and 1658 remarkably cold. In 1651, in the country about Rome, a contagious epidemic quinsy prevailed, and made terrible slaughter among children. A small ulcer arose in the mouth, for which juice of wood-sorrel, syrup of pomegranates, with the bark, and chiefly the acid of vitriol, were useful. All that took these medicines recovered; but those who were not tractable, and refused medicines,

died: it did not seize adults nor the aged. In 1654 the plague was in Denmark; and in 1665 and the two following years, it prevailed exceedingly in the south of Europe; the agues likewise of these hot years were malignant, and spotted fevers were very common. In 1664, after a mild rainy winter, a malignant purple fever raged in Prussia, and killed great numbers under twelve years of age; those only escaping who had no inflammation or œdematous tumour in the throat. Such as recovered, after sweating, had scales peeling off the skin; then adults had a swelling over their body and their belly, which continued several weeks like leucophlegmatia; and then went off by sweat and urine. This epidemic seems a considerable deviation from their general progress laid down in the scheme of them already mentioned, and is, therefore, particularly noticed in this place.

8. In 1665 an excessively severe frost, which continued to the end of March, summer temperate; 1666 a very hot dry year, followed by two as wet and cold. In 1665, immediately after the frost, began the plague in London, which killed, according to the least computation, sixty-eight thousand five hundred and ninety-six. Since that time the plague has vanished from London, and all other epidemics seem to have become less malignant, owing to many causes; among which may, perhaps, be a greater use of fresh vegetable food, a less use of fish, an universal use of tea, superior cleanliness in our persons, a greater attention to the poor in times of scarcity, which are now scarcely felt in any

extreme degree, and, lastly, the tremendous fire in 1666, since which the streets have been very much widened, and the houses so enlarged, that the same number of inhabitants now occupy above double the space. In 1667 an epidemic fever, with aphthæ, prevailed in Holland, in which acids were useful, but neither bleeding nor purging.

9. In 1669, the summer intolerably hot, after which the winter was as severely cold and frosty; 1670, a severe frosty winter: the rest of this constitution bad and wet. In 1669 a most fatal fever prevailed, with slimy tongue, sore mouth, &c., in which bleeding was hurtful, but acids and laxatives very beneficial. Sydenham does not mention this fever, nor its return in 1678, although, next to the plague, they were the greatest epidemics in his time; which, together with his little knowledge of putrid fevers, can only be attributed to his practice lying about the court; whilst Morton, who practised in the city, gives abundant proofs that putrid complaints were as prevalent then as at this time. The same year, in Norway, malignant measles are said to have prevailed, with thrush, which, if mismanaged or neglected, ended in a fatal mortification. In 1675, a coryza, or-cough, was prevalent.

10. In 1678, summer and harvest drouthy, hot, and clear; 1679, winter long, severe frost, and intensely cold; 1680 and 1681, summer extremely dry and hot; the next two years rainy. In 1678 the same fever and sore throat prevailed as in 1669. In 1679, after a most deluging October, a catarrh was universal.

In 1682 sphacelated tongues and angina maligna prevailed among cattle; in the same year, in Dublin, a fatal petechial fever.

11. The year 1684 was remarkable for the severest frost remembered at that time, succeeded by a very dry and hot summer, to which 1686 bore a near resemblance: the other years were rainy till 1691. In 1684 spotted fevers, particularly of the miliary kind, were common. This and the following year of 1685 are remarkable for the greatest number of burials; from 1665 to 1714,—although 1684 does not contain St. James's, Westminster, and neither 1684 nor 1685 contains St. Ann's, Westminster, nor St. John's, Wapping, parishes which are inserted in every following bill of mortality, and which then buried above sixteen hundred annually at a medium. In 1688 an epidemic catarrh prevailed all over Europe.

12. A frosty winter in 1691, and excessively hot and dry summer. The same in 1694. The other years rainy and variable. In 1691 a fatal spotted fever prevailed; and in 1693 an universal catarrh, and in 1695 the hooping cough.

13. Of 1698 an exceedingly hard frost in the winter; the rest of this constitution rather rainy. In October, 1698, began a fatal, contagious, spotted fever, which spread all over England. Coughs attended most of the diseases. 1703.

14. The year 1704 was excessively dry, so that the grass was burnt up; this continued till August 15, 1705; the rest of this constitution cold and wet. In 1704 malignant spotted fevers were common. In 1708

coughs and coryzas prevailed every where, so that few escaped.

15. In 1709 great frost all over Europe, and even in Portugal; in 1712 a very frosty winter; the rest of this constitution variable. In 1709 the plague broke out at Dantzic, immediately after the thaw, and killed twenty-four thousand five hundred and fifty-three. In 1710 the plague in Copenhagen killed twenty-five thousand. In 1712, sore throats universal in July and August, with dizziness and pains of the limbs in London.

16. The year 1714, and the six succeeding years, were all dry, with hot summers. In the winter of 1716 so severe a frost, that the Thames was covered with booths: that of 1718 likewise very frosty, the rest to 1731 cold, wet, and variable, except 1723, which was cold and dry, and 1729, which was a cold dry winter, followed by a hot dry summer. In 1720 the plague killed sixty thousand in Marseilles. In 1729 an universal epidemic catarrh prevailed in November.

17. The year 1731 was a very dry one, which continued until harvest, 1732; summer of 1733 rather dry and pleasant, as was most of 1738; the remainder of this constitution extremely wet. In the beginning of 1733 was an epidemic catarrh; 1737, 1738, and 1739, were all much infested with catarrhal fevers, especially among children.

18. In 1740 was the severest frosty winter and spring that had happened for three hundred years; 1741, extremely dry, hot summer; 1742, a variable, but dry year; the rest of this constitution wet or variable. In 1740 a malignant petechial fever made

great havoc in Bristol and in Galway in Ireland. In 1741 it reached London, where this and the last year were the most mortal ever known, except when the plague reigned, the burials amounting to sixty-two thousand nine hundred and eighty. In 1742 the putrid sore throat broke out. In March, 1744, an epidemic catarrh was universal and was more fatal than usual.

19. In 1747, there was an excessively hot, dry summer; 1750, a dry year throughout, and intensely hot summer; the rest of this constitution moderate, variable, or wet. In 1747, and the succeeding years, the sore throat seemed to acquire new vigour, alarming the inhabitants of these kingdoms very much. In November, 1758, there was an universal epidemic catarrh.

20. The year 1760 was drouthy, from June 26th to September 16th; the end of that and the following year severely wet, as was the end of 1763 and the beginning of 1764; the rest of this constitution moderate. In April and May, 1762, a most epidemic catarrh.

21. A very dry year, and rather hot summer in 1765, as was the next year, though not quite so much so; the remainder of this constitution moderate years, rather inclining to wet. During this constitution no very remarkable epidemic till the universal catarrh in November, 1775, unless we reckon such the small-pox of the year 1772, which, succeeding a hard winter, was more fatal than it had ever been before in London.

22. The year 1776 was dry, and 1778 still more so. The winter of 1780 was the most frosty since 1740:

yet these deviations from what might be accounted moderate weather, were so small as scarcely to deserve notice. In May, 1782, there was a very general epidemic catarrh; and early in 1783 began the constitution which produced the epidemic scarlatina anginosa, which spread very considerably.

In 1803 an epidemic catarrh, or Influenza, prevailed. We may remark, that the Influenza of 1781 and 1782 is said to have originated in China, and to have travelled through Asia into Europe; whence it crossed the Atlantic, and arrived the ensuing year in America. But this report requires additional evidence.

No. II.

*Substance of a Report published by the Supreme
Medical Board of Russia.*

[From the Foreign Quarterly Review, April, 1831.]

THE disease first showed itself in Orenburg, the 26th of August, 1829, and later in the village of Massena, February 6, 1830. The number of sufferers amounted to three thousand five hundred and ninety, of whom two thousand seven hundred and twenty-five recovered, eight hundred and sixty-five perished. Considering the apprehensions excited as to the results, the treatment adopted must be esteemed very effectual. From the combination of individual observations and experience, the Medical Board has arrived at the following conclusions; which, with reference to the strongly disputed point, as to the contagiousness of the distemper, as well as a general insight into its nature, and the remedies applied, will be found of the highest importance:

1. That the disease prevailing at Orenburg within the specified period was actually the cholera.

2. The important question, whether the disease originated in Orenburg itself, or was introduced from its boundaries on the Kirgish side, in spite of the most rigid investigation on the part of the local medical boards, is yet undecided.

3. The other question, however, which does not yield

to it in importance, *viz.*, whether the disease be contagious, is now more satisfactorily settled than the first. From the first observations on it, independent of the description of the staff physician, Dr. Sokolov, we might be induced to think that the cholera did not communicate itself to the patient by immediate contact. However, in the progress of the malady, the local boards, as well as the physicians, have been fully convinced that the cholera does, in fact, disseminate itself from one man to another, and by this means travels from place to place.

4. From all observations collected, we must come to the conclusion, that the contagiousness of the cholera, though in some instances incontestable, is nevertheless not so apparent as that of the plague and yellow fever. The infectious power is not so visible in its operation on all who come in collision with those affected with it. This is most conspicuous in the primary stage of the disorder.

5. All this tends to confirm the decision of the medical board, which was contained in their treatise issued on this subject. In this it is declared that the cholera, in common with many other epidemical disorders, becomes in process of time contagious, and may then extend itself by communication.

6. The police and quarantine regulations adopted in the Orenburg government were doubtless of great benefit. Nevertheless it occurred, as related by the staff physician, that the inhabitants, after the enforcement of a fourteen days quarantine, were visited by this disease. Allowing that this happened without any

recent intercourse with persons and places affected, we must concede that the term of fourteen days was scarcely adequate for the full developement of the latent malady in the subject. It has resulted from observation that the contagiousness really exists.

7. Confiding in these remarks, and not in any theories that may have obtained on the subject, we must allow that the progress of the disease at Orenburg was of the most rapid nature. In the course of twelve to eighteen hours from its commencement, the disease has been known to terminate fatally.

8. The cholera, partaking of the character of the plague, can recur, and affect the same persons again.

9. Change of weather and climate has apparently no influence on the progress of the cholera. The cold, in contradiction to the early observations, has not the least power over it. It was in December and January that it attained its utmost malignity, and extended itself in some places at a temperature of 27° to 30° Reaumur.

10. The faculty of Orenburg adopted no other police or precautionary measures against the cholera than those prescribed in the directions of the medical board. They consist in the entire separation of the patient from the sound members of the community, and in a faithful application of all external influences which may benefit the patient.

11. The protecting power of camphor has, it appears, on this occasion, proved ineffectual. In none of the observations collected is it mentioned.

12. In the treatment of the cholera, the necessity of the immediate application of medical means has been

abundantly established. The lapse of a few hours without recourse to the assistance of art will render the disease very dangerous, often incurable. The '*médecine expectative*' cannot be made available here. The strongest remedies must be applied without the least temporization or intermission.

13. From amongst the multitudes of remedies we may select the chief, viz., bleeding, calomel, opium, warm covering, and friction.

14. Oil of cajeput, volatile alkali, and muriatic acid, fail of their expected operation here.

15. The mortality of this epidemic was not so extensive as it is described to be in its ravages in the south of Asia. A census of the mortality was taken in the Orenburg government, where the people were in the habit of concealing the disease in its incipient state, and where little attention is paid to cleanliness and salubrity of dwellings. If we compare the details in the list of the dead, we shall find some districts which have suffered more severely than others.

No. III.

*Admissions and Casualties from Cholera, in the Army
of Fort St. George, both Europeans and Natives.**

EUROPEANS.

YEARS.	Total Strength of the Army.	Total Admis- sion of Cholera.	Rate Per Cent. of Admission upon the Strength.	Total Number of Deaths.	Rate Per Cent. of Deaths upon the Admissions.	Rate Per Mille of Deaths upon the Strength.
1818	10,652	1087	10 p. cent.	232	21 p. cent.	21 p. mille.
1819	10,125	500	5	85	17	8
1820	9,416	343	4	69	20	7
1821	9,553	357	4	39	11	4
Grand Total }	39,746	2287	6	425	18	10

NATIVES.

YEARS.	Total Strength of the Army.	Total Admis- sion of Cholera.	Rate Per Cent. of Admission upon the Strength.	Total Number of Deaths.	Rate Per Cent. of Deaths upon the Admissions.	Rate Per Mille of Deaths upon the Strength.
1818	58,764	2496	4 p. cent.	664	26 p. cent.	10 p. mille.
1819	63,782	2684	4	734	27	11
1820	76,870	3178	4	758	24	10
1821	82,046	2527	3	830	33	10
Grand Total }	281,462	10,885	4	2986	27	10

* Annesley, p. 222.

No. IV.

Letter from a Physician at Moscow.

[From the Edinburgh Medical Journal, April 1831.]

Moscow, 30th Nov. (12th Dec.)

THE news of the disease having shown itself on Russian frontier, bordering on Persia, last year attracted little attention. When, however, we were informed that the disease, after ravaging Tabris, the seat of Persian government, had spread to Teflis, the capital of Georgia, and thence to Orenburgh, and its government, Astracan, and, following the course of the river, leaving the colony of Sarepta untouched, (who are said to have saved themselves by a strict observance of cutting off all communication without the city,) had reached Saratoff, we began to think that it might visit this city, which, as I have already informed you in my last letter, proved but too true. The disease showed itself equivocally, though sporadically, from the 12-20th to the 15-27th September last, and is pretty generally believed to have been imported from Saratoff, by a fair of Nishney Novogorod, though this is a supposition which has not yet been sufficiently investigated. It shall be, if God spare me, as soon as I can find leisure. From this time it gradually, but not very much increased, showed a strongly marked epidemic character, particularly affecting the lower classes of the people, the ill-fed, ill-clothed, living in low and damp

or cellars, and whose habits of intemperance, and carelessness of health, predisposed them to the action of the efficient cause, whatever that may be. About the 14-26th October there were, by the public accounts, one thousand and sixty-six sick of cholera; and on that day two hundred and forty-four were seized with the disease. It seems then to have been at its acme, and from that time has gradually declined. The number taken ill two or three days ago amounts to sixteen or seventeen daily; in consequence of this diminution, several of the public temporary hospitals have been shut up, and several others, of which that I have had the charge of is one, have not received patients for these last ten or twelve days. On the 5-17th November, the public accounts stood thus. From the appearance of the complaint till that day, were affected with cholera, six thousand five hundred and thirty-one: recovered one thousand eight hundred and thirteen; died three thousand five hundred and eight; remained sick one thousand two hundred and ten. The total number affected with the disease by the latest statement, December 7-19th, amounts to seven thousand, of whom more than four thousand died. About the time the complaint appeared in Moscow, the government thought it necessary to intercept all direct communication with the town; and no one was allowed to leave the city, or come into it, without observing quarantine. The working classes, to a considerable amount, were sent off to their villages, and many of the nobility left the city altogether, so that the population was considerably reduced.

The city is divided into twenty divisions, in which a temporary hospital was provided as might be; a medical council was formed, w daily, and frequently twice a-day, at the Governor's residence; and its members were principally from the inspectors of the hospitals whom had under his charge or inspection several surgeons and students. By the orders of the of the interior, about sixty medical men were from Moscow for the service of the interior b complaint began, so that the inspectors had responsibility, and a great deal of the anxiety and fatigue on their shoulders; and among others, since all the young men that assisted me but very little practice, and, of course, were not fitted to take charge of such cases, and such as we had to do with. There were, in consequence, constant and strong calls on us, both in the way and humanity. In every quarter there is a police where some medical men are in attendance; and orders were issued, that, so soon as any person taken ill in the quarter, information should immediately be sent to the police station, whence a medical man was immediately sent to examine, and make his report. When symptoms of cholera appeared, he either immediately prescribed, or bled the patient, or, what we afterwards, in our quarter at least, better, dispatched him in a carriage with four horses which stood yoked day and night, and conveyed straight to the hospital. In this way as little time was lost as possible. From one cause or other, I

partly the ignorance and indifference of the lower classes, partly their dislike to the hospital, and carriage, &c. we never got patients to the hospital of which I had charge sooner than six hours after the commencement of the disease, seldom so few as eight, and most frequently ten, twelve, eighteen, or more. In this manner two patients never entered the hospital, but died in the carriage that brought them, eleven before any medical assistance could be given them, and a great many in three hours, sometimes more, sometimes less. After they were brought to us, several died in the warm bath, one of the first remedies we used; indeed, a very great number were in such a state, as to be out of the reach of medicine, being half dead, and without pulse at the wrist.

Under these and other disadvantages, such as the great press of business, the distance of the hospital from my house and from the apothecary's shop, and the time lost between the prescription and the exhibition of the medicine, it is no wonder, that in so rapid and formidable a disease as the Indian cholera, which it undoubtedly is, I should only have been able to save fifty-six out of one hundred and sixty-four, the number brought to us dead, dying, and very ill. We had no slight cases, though a *few* where the disease was less distinctly marked; and some where, the characteristic symptoms being quieted, the complaint appeared under the form of continued fever, with biliary irritation and derangement in the secretion of the bile.

I had studied what the Indian writers had written on cholera, as far as my library afforded me the means,

and, through the Edinburgh Medical and Surgical Journal, knew their practice ; but my notions on the disease were chiefly drawn from my own experience in bilious cholera, and the close study, for the greatest part of my life, of the diseases of the digestive organs. I adopted the pathological views of this disease given by Dr. Ayre in his practical work on the disorders called bilious, which were confirmed by the perusal of the part of Dr. James Johnson's work on Diseases of Tropical Climates relating to this disease, which I received about this time from England by Mr. Harvey. I determined, however, to act with caution, as having to do with a formidable foe, and to judge for myself unbiassed by any one, and trusting to my own knowledge and practical experience ; and as bleeding had been so much recommended by the Indian writers, I thought it right to try it in three cases, all of whom died. Two were strong men. One, however, though naturally strong enjoyed but indifferent health ; the other two were bleeded under unfavourable circumstances, so that all the conclusion I could draw from these was, that, under such or similar circumstances, bleeding was likely to do more harm than good ; and as at this period of the epidemic the surgeons at the police were in the habit of bleeding almost every one they were sent to, I found it necessary to put a stop to such indiscriminate practice. Local bleeding I frequently found useful, and general bleeding, in one case particularly, was of great use in the course of this disease, where it had the appearance of abdominal inflammation ; in another, a bleeding employed early in the disease, and done effectually, the

is, fourteen or sixteen ounces taken from the arm, followed by magnesia and rhubarb, cut short the complaint, which the patient, one of the young men of the establishment, had temporized with by using opium and oil of peppermint. The third day after the bleeding, he was at his duty again, and has remained well since.

Founding my practice on the pathological views which I have alluded to, I used a modified Indian practice, seeing clearly that, unless I could make some strong impression on my patients at the first, the exhibition of medicine was in vain. A *medicina expectans* in such a state of things is worse than trifling; and having frequently experienced the good effects of twenty-grain doses of calomel in high excitement of the frame, I had no fear of giving such a dose to those who had no pulse at the wrist, so that my invariable practice was at first, till we got a vapour bath fitted up, to strip the patient so soon as he was brought to the hospital, and put him, cold and shrunk, into the warm-bath, of which the temperature was gradually increased as high as he could well bear. The bath was made more stimulating by adding a large proportion of common salt. While the bath was getting ready, we administered a glass of good brandy-punch; and when in the bath, watching a favourable moment when we thought the stomach was least likely to reject it, gave him twenty grains of calomel, mixed with as much gum-arabic, and washed it down as the Indians do, by from ten to twenty drops of oil of peppermint, mixed with an ounce and a half of pure water, and, in general, forty drops of

laudanum of the Edinburgh Pharmacopœia, or, instead of this, the calomel was washed down by a table-spoonful of cogniac, and forty drops of laudanum, according to circumstances. This, or a diminished dose, was repeated, according to circumstances, a few hours afterwards. I rarely had occasion to give a third dose, as by the time we would have given it, the patient either showed morbid symptoms, or an abatement of the more urgent ones. It was then that I employed, what I consider a very essential part of the treatment of this disease, the regular and free, but prudent, use of purgatives, so as to follow up and assist the effects which I suppose to have been produced on the digestive organs by the calomel already given for this purpose. I have sometimes given an emulsion, with castor-oil and laudanum; but having found it often returned by vomiting, I generally used an infusion of senna, with manna and Epsom salts, unless where I feared inflammation; and in such cases I preferred the emulsion with castor-oil; in other cases, these, though taken in free doses, were not sufficient to open the gall-ducts, so that I was forced to use something more stimulating, such as pills of rhubarb with calomel, or the compound extract of colocynth of Reuss's Pharmacopœia, with calomel. By the use of one or other of these medicines, I commonly succeeded in procuring a free flow of morbid bile from the liver and gall-bladder, which I believed, and found by experience, to be the surest key to unlock the disease; for I lost no patient (excepting one where an infusion of senna was given injudiciously, and by

mistake) in whom I succeeded in procuring a free biliary discharge by stool once. The watery stools and vomiting subdued, they never returned, unless the patient had a relapse by his own imprudence in eating. One of our young students, who entered on his office in bad health, was seized with the disease. By active treatment and great care, I left him in bed at the hospital at ten at night out of danger, after having been two days very ill. The next morning, on visiting him, I found him without pulse. On inquiry as to the cause of this sudden, and hitherto inexperienced, change, I was informed that, feeling himself disposed to eat soon after I left him the preceding evening, he had eaten freely of some soup, and a bowl of which it was made. The quantity he took was more than his stomach could bear; brought on vomiting and purging, and such a collapse of the vital powers as defied all medicine. He sunk in spite of all my efforts to save him. This is not a solitary case. I am making preparations to try the effects of galvanism, electricity, and the protoxide of azote, or a considerable proportion of oxygen with atmospheric air. It appears to me probable that the primary impression of the poison which produces the disease is made through the organs of respiration on the blood itself, which appears to me to be unduly carbonized, and hence unfitted for the natural excitement of the nervous and muscular organs. Hence the morbid symptoms of diminished irritability of the heart, and undue influence of the brain on the muscles in general, as well as the torpor of the senses.

The *cordon sanitaire* has been removed thirty versts from Moscow.

Dec. 7-19th. By the last accounts the number affected with cholera exceeds seven thousand, and the number of deaths above four thousand.

No. V.

Letter from Dr. Whitelaw Ainslie on the Treatment of the Cholera.[From the *Times* of June 20th, 1831.]

THE idea of the cholera ever reaching our happy country—for happy we must call it, in spite of the threatening aspect of the political horizon—is certainly not a little appalling; the more especially so, as all the means hitherto employed for combating the hydra have too often failed. Every account of it—and several have been given to the world—ought to convince us of two things: First, that the positive nature and cause of the spasmodic cholera, at least such as it appears in India, are as yet unknown. In the second place, that the use of what are called drugs (the various articles of the *Materia Medica*) has had, up to this period, no very certain or undeviating good effect.

If we may judge, however, from a discovery lately made by Dr. Walker, of the medical staff of St. Petersburg,—and I hold it to be one of great importance,—that in the blood of all those who die of the cholera there is ever found more or less of acetic acid (no component part of healthy blood), we may presume that an acidity of some kind in the first passages must at one period of the malady prevail; and here it may be allowed, whatever disparities there may be in other

respects, that there is a degree of affinity between disorder and the common or simple cholera morbi which I found, and noticed in my work on that complaint as it shows itself on the Coromandel coast: an antacid (magnesia) was, I may say, a specific, judiciously administered.

This is not the time or place to discuss points connected with the minute management of a disorder intractable, so mysterious, as the cholera. I therefore merely here observe, that I perfectly agree with you as to what you have brought forward generally respecting bleeding and calomel, though we admit that some very intelligent physicians have advocated the use of those means. In a paper written some time ago took the liberty of transmitting to the Government of St. Petersburg, I suggested when other means had proved impotent in attacking this dreadful calamity, the inhaling of oxygen (purely diluted with atmospheric air) into the lungs might not be tried, because nothing is yet known which more powerfully and suddenly resuscitates, warms, and re-animates the human frame. This *modus medendi* I offered to the consideration of the medical officers, who have now to exert their efforts against the disease in those countries in which it rages from any personal experience of its utility, but on a broad score of fellow-feeling and humanity, as giving one chance more for a happy issue; and also from the circumstance of its having been invariably found successful however occasioned, by whatever cause produced epidemic or contagious, there is evidently in the last

of the spasmodic cholera a deficiency of oxygen in the circulating blood, or, as some chemists will have it, a want of decarbonization, as evinced by the dark colour of the blood when then drawn. This may explain the great difficulty experienced in respiration, and the extreme weakness.

Pray excuse any incorrectness that may appear in this letter, written as it is in the hurry of the moment, but not under the less anxiety that England may never have to mourn for thousands sent to the grave, while science herself has little more to offer than a vain, painful regret.

No. VI.

*Extract of a Letter from Dr. Reimonn, Physician
St. Petersburg, communicated to the Academy
of Medicine, at Paris, by Dr. Marc.*

THE cholera was brought to Astracan by ships, and has spread itself over Russia from Astracan by the emigration of the inhabitants, principally those of the lower orders. This is the sole cause of its propagation in Russia; it has never shown itself in any other place except where it has been brought by travellers who came from infected places. *We have not a single instance* of a town, or of a village, which, without communication with houses or persons affected, has contracted the disorder. Several places surrounding the disease have preserved themselves from it by rigid insulation. It is a contagion *sui generis*, we must not assimilate with the plague, and which may be more or less rapid, more or less extensive, according to the more or less wholesome nature of the localities. It has thus been more dangerous to the Jews, who are shut up in small rooms, and in extreme filth. In the small town of Redislscheft, of eight hundred inhabitants, seven hundred died in one week; while, at Moscow, only a little more than half of the sick perished, and in the villages a third, a fourth, or even much less. R. allows, however, that his opinion of the contagious nature of the disease is not shared by the majority of physicians at Moscow.

No. VII.

Extract from a Memoir of Dr. Loder, Physician to the Emperor at St. Petersburg, and dated the beginning of January, 1831. Read at the Academy of Medicine, at Paris.

THE number of sick attacked by the cholera, since the 16th of September last, has been eight thousand one hundred and thirty. The number of recoveries has been three thousand five hundred and eighty-four, and the deaths have been four thousand three hundred and eighty-five. The number still remaining sick are one hundred and sixty-one. The total population of Moscow is estimated at two hundred and fifty thousand.

No. VIII.

*Proclamation of His Majesty in Council enforcing
Quarantine, and establishing a Board of Health.*

BY THE KING.—A PROCLAMATION.

WILLIAM, R.

Whereas alarming accounts have been received of a malignant and infectious disease has spread and attended itself to parts of the coasts of the Baltic, and other places; and whereas we feel it to be incumbent upon us to employ such means as, under the protection and favour of DIVINE PROVIDENCE, may be calculated to guard our loving subjects against visitation of so dreadful a calamity, we have thought fit, by and with the advice of our Privy Council, to issue this our Royal Proclamation; and we do hereby and with the advice of our said Council, strictly enjoin and command all our loving subjects, and more especially those residing at any of the port towns, or in any other places on the coasts of this kingdom, whether they may themselves be liable to quarantine or otherwise, as they tender the preservation of their own lives, and the safety and welfare of the inhabitants of this kingdom, most scrupulously observe all the laws of quarantine which now or hereafter be in force, and all orders made by us in pursuance of the advice of our Privy Council, or by our

Council under the authority thereof, and particularly most carefully to avoid any communication with any ship or vessel, or with any person or persons coming therein from the Baltic, or from any place to which by our Royal Proclamation, by and with the advice of our Privy Council, or by our Orders in Council, the laws of quarantine are or may hereafter be extended, or with any boat or person therein coming from or having been on board any ship, until such ship, vessel, or boat, with the crews and persons on board, and the goods, wares, and merchandize imported therein, shall have performed their quarantine in such places and manner as are or shall hereafter be directed in that behalf, and until they respectively shall have been duly discharged therefrom; and we do further strictly exhort, enjoin, and command all magistrates and persons in authority, and all our other loving subjects, without loss of time, to give information to us, through our Principal Secretary of State for the Home Department, or to our Privy Council, of any person that they may know or believe to have offended against any of the said laws or orders: and we do hereby warn all persons whom it may concern, that we have given the strictest order for enforcing with the utmost rigour the most punctual observance of the laws of quarantine, and all the orders, rules, and regulations relating thereto, it being our firm determination, upon serious consideration of the great extent of misery and calamity which a single instance of improvidently neglecting any of these regulations may bring upon our loving subjects, to cause the severest penalties which the law has provided or may provide to be inflicted upon

all those who may be guilty of any offence against the same ; and whereas it is also necessary to take the utmost precaution to prevent the spreading of infection, in case the said malignant disease (which God in his mercy avert) should unhappily manifest itself in any part of our United Kingdom, notwithstanding the precautions taken to guard against the introduction thereof, we have thought fit, by and with the advice of our said Council, to take measures for the establishment of a Board of Health, to consist of men able, learned, eminent, and experienced in the study and practice of medicine, together with persons most capable, from their knowledge of the ports of our kingdom, to afford assistance in the forming of regulations respectively applicable to the local circumstances of the said ports, such Board to be authorized and directed to prepare and digest the best rules and regulations for the speedy and effectual adoption of the most approved method of guarding against the introduction and spreading of infection, and for purifying any ship, or house, or any place, in which any contagious disorder may have manifested itself, and to communicate the same to all magistrates, medical persons, and others of our loving subjects who may be desirous and may apply to be made acquainted therewith : and we most strictly enjoin and command all magistrates and persons in authority, all medical persons, and others, our loving subjects, especially those within the maritime counties, to give immediate notice to us, through our Principal Secretary of State for the Home Department, or our Privy Council, in case any person or persons should be attacked with any disease

attended with new and uncommon symptoms, such as to afford ground for apprehension that such disease is of the same nature as the disorder called Cholera Morbus, prevailing in several parts of Russia, and elsewhere, in order that the most immediate and effectual measures may be taken, as well for affording due and necessary assistance and relief to those afflicted with the same, as for preventing the contagion from spreading amongst our loving subjects.

Given at our Court of St. James's, the twentieth day of June one thousand eight hundred and thirty-one, and in the first year of our reign.

GOD save the KING.

Council-Office, Whitehall, June 21.

His Majesty has been pleased to establish a Board of Health, to prepare and digest rules and regulations for the most speedy and effectual mode of guarding against the introduction and spreading of infection, and for purifying any ship or house in case any contagious disorder should unhappily manifest itself in any part of the United Kingdom, notwithstanding the precautions taken to guard against the introduction thereof, and to communicate the same to all magistrates, medical persons, and others, his Majesty's subjects, who may be desirous and may apply to be made acquainted therewith.

The said Board hold their meeting at the Royal Col-

lege of Physicians, and is composed of the following persons—viz.:

Sir Henry Halford, President of the Royal College of Physicians, President.

Dr. Holland, Dr. Maton, Dr. Turner, Dr. Warren, Dr. Macmichael, Fellows of the Royal College of Physicians.

Sir T. Byam Martin, Comptroller of his Majesty's Navy.

Hon. Edward Stewart, Deputy Chairman of Board of Customs.

Sir James M'Gregor, Director-General of Army Hospitals.

Sir William Burnet, Commissioner of Victualling Office.

Sir William Pym, Superintendant-General of Quarantine.

Dr. Seymour, Fellow of the Royal College of Physicians, to be Secretary to the said Board.

No. IX.

On the Treatment of the Indian Cholera.

[Extract of a Letter from India, inserted in the London Medical Gazette, vol. ii. p. 711.]

OUR old enemy, the cholera, has not committed its accustomed deadly ravages this year, and, it is to be hoped, is wearing itself out. I have not had occasion to resort to my *recipe* for these three months past, which I certainly have found both an antidote and cure. You may probably know, or have heard of it. It is the *kyapoota* (*cajepoota*) oil: at all events, you possibly remember the virtues formerly ascribed to it for rheumatic affections, though, I believe, not then administered internally. I have, however, used it with great success in cases of cholera: ten to fifteen drops to children, and thirty to fifty to adults, merely swallowed in a wine-glass of warm water. Some of the faculty called it a *quack nostrum*, who, I have reason to believe, have since used it with benefit. I accidentally introduced it about two years ago, but take no merit beyond the successful application of it, whilst the population were dying by hundreds about me, having discovered a recital of its efficacy in an old Bengal paper, which induced me to try the experiment; and some of the recoveries were remarkable from the last stage of the disorder, and even after the usual applications had failed from the *Materia Medica*.

No. X.

Report of the Medical Board of Riga.

Riga, May 14, (26).

AGREEABLY to the orders of the high authorities of the Livonian Medical Board, it is made known to the Riga inhabitants, that after the appearance of a few sudden deaths and suspicious sicknesses had drawn the attention of the Medical Board, it now appears, beyond doubt, that the illness which has appeared in the city is the cholera morbus. By the most particular inquiries, it does not appear that this disease has been introduced from outwards into the city; and from the circumstance of the neighbouring Governments of Courland, and the borders of the Duna, to the Minsk Government, remaining in a healthy state, as likewise that those who were first attacked, have not been strangers, but inhabitants, who lived in parts of the town distant from each other, and in the suburbs, would prove that the sickness has shown itself in this place from unknown causes in the air and surface of the earth, more particularly as the breaking out of the disease was at the commencement of unusually hot and sultry weather; and further, the public is brought to the recollection, that the College of Physicians in Moscow, called together by order of his Imperial Majesty, loudly declared it to be their opinion, that the Cholera could not be communicated from one person to another by goods or merchandize. Let not,

therefore, the inhabitants of this town fear that the sickness is infectious ; but rather let them, by an attention to their way of living, according to the regulations recommended, protect themselves against the disease, and in reliance on the forethought and precautions of the high authorities, to seek their comfort and consolation. The Livonian Medical Board will give the public constant accounts of the state of the disease.

Inspector D. DYRSEN.

No. XI.

Report of the Committee of Health at Warsaw.

THE malady usually begins with vertigo, and with cramps in the limbs, so violent, that the individual falls to the ground, powerless and motionless. These symptoms are followed by excessive vomiting and dreadful pain. The patient, according to the experience here promulgated, ought to be entirely undressed, laid upon his back on a bed, and covered with a sheet. Hempseed, previously steeped in boiling water, should then be heaped upon him, outside the chest, from the neck to the feet, as hot as he can bear it. When this cataplasm begins to cool, it should be renewed three or four times, until the patient breaks out into a profuse perspiration. To increase this perspiration, he should drink a sudorific ptisan made of elder flowers. If he complain of nausea, a spoonful of magnesia, or of olive oil, should be administered to him. When he has remained for a considerable time in this state, he should be wiped and dried, and his bed-linen changed; great care being taken that he does not become cold. He is then out of danger; and all that remains is to re-establish his strength.

No. XII.

Account of the Symptoms and Treatment of the Epidemic Cholera of Persia, in 1822, by John Cormick, Esq.

THE spasmodic cholera of India reached last year as far as Shiraz, and this year we had it here, and in almost every other city of Persia. At this moment it has gone as far as the western frontier of Persia, and, having come thus far west from Calcutta, who can say that it will not reach as far as Europe? This disease differs from the cholera morbus of nosologists in this respect,—that there is not a vomiting and purging of bile, as its name would imply, but of a whitish water, without taste or smell, and resembling that in which rice had been boiled.

The general symptoms were a vomiting and purging of immense quantities of the above whitish liquid; the surface of the whole body became cold, more particularly the hands and feet, which assume a dark blue colour, approaching to black: pulse entirely lost: violent spasms of the muscles of the legs, thighs, and abdomen: eyes sunk, great thirst, countenance fallen, and more that of a dead than a living man: extreme restlessness: anxiety and oppression of the præcordia: the palms of the hands and soles of the feet corrugated, as if they had been a long time immersed in warm water; a total cessation of the secretions of the urine, bile, and saliva.

The blood recedes from the surface, and accumulates in the cavities of the abdomen, thorax, and cranium. The heart is felt to palpitate and labour hard to press forward the mass of blood that is pressing upon its large veins. While everything indicates a want of circulation, and the stagnant venous blood gives a red colour to the whole body, the eyes alone are of a pale red colour and covered with arterial blood, indicating a fatal accumulation that is taking place within. In such cases, the attack was so violent that the sufferer, after struggling and, with a few efforts to vomit, expired.

In the treatment of this disease, I allowed (as was present at the commencement) the vomiting, & continued it on for some little time, while I perceived that the discharges were copious, and unattended by severe pain, fainting and exertion. When I perceived the discharges diminished in quantity, the first object was to stop the vomiting, in order to gain time for the administration of such other cathartics as would most speedily procure alvine evacuations of a dark colour or bilious for, until this was effected, a cure could not be expected with any certainty, and this object once obtained, removed two thirds of the difficulty and danger of the disease. Calomel, sometimes alone, sometimes combined with opium, and at other times opium alone, produced this effect. Occasionally, when all these failed, twice or thrice repeated, of laudanum and rice-water, or rice-water, one drachm in a pint, succeeded. I always gave calomel the first trial, as it possesses the additional advantage of bringing on a healthy action of the liver, which was gorged with blood and a secret

bile, more readily and more effectually than any other medicine with which I am acquainted. As soon as the state of the stomach admitted of it, I gave six to ten grains of calomel, with ten grains of compound extract of colocyath, every hour, administering at the same time a stimulating injection, generally of salt and water. This medicine I used, as, being small in quantity, it was less likely to bring on a recurrence of the vomiting. After three or four repetitions of it, if copious evacuations were not produced, which was seldom the case, I gave an ounce of castor oil, with as much peppermint water, every hour, till this object was attained.

In many cases, recovery was so slow, that strong purgatives were necessary every five or six hours, for two or three days. It happened but seldom that I was called in at the very commencement of the attack to try copious bleeding when the best effects might reasonably be expected from it. I tried it in some instances during the violence of the attack, but found so much difficulty in procuring the flow of five or six ounces, that I gave it up. During the secondary stages of the disorder, however, I found it of infinite use in relieving the head, removing the disposition to coma, and facilitating the return of the healthy secretions of the hepatic system, Topical bleeding by cupping, leeches, and opening the temporal arteries, I had frequent recourse to, and never without beneficial effects. It was with warm-bathing as with blood-letting; during the greatest violence of the attack I often tried it, but the patient never felt any relief; on the contrary, he complained of increased sufferings, and always felt more exhausted afterwards,

When, however, this stage had passed, it greatly aided his recovery, and seemed to me to be particularly serviceable in restoring the secretion of urine.

As far as my own experience has gone, I am not to place but very little confidence in large and repeated doses of laudanum and ether, so freely administered in India on most occasions. Indeed, the inflamed and ulcerated state in which the stomach has been in a great many cases, examined after death, would contra-indicate them.

Externally, I went through the usual routine of laxative and stimulating liniments, frictions with laudanum and spirits, &c., but cannot say that they produced very obvious good effects. Latterly, I was led, by my experience, to place most confidence in pieces of flannel moistened in water almost boiling, and carefully rubbed and tied about the legs and arms. They kept up heat in the extremities better than anything I have ever tried.

The disease first began in that part of the city which is most low, filthy, and crowded with poor inhabitants, and advanced from quarter to quarter of it, until it had ravaged in one before it commenced them in another. It was most destructive in the houses which were most crowded and possessed most inhabitants. In no case was a patient abandoned by his friends, under the impression that this epidemic was contagious. This idea seems to be very generally abandoned. The family of the Prince quitted this city after the violence of the epidemic had already begun to abate. They, however, continued the epidemic along with them, and continued

attacked, from four to six a-day, for about ten days, wherever they went, although not a single person of the villages through which they passed, or where they slept, took the disease. Was it that they carried the contaminated atmosphere along with them? or, being in a healthy climate, and amidst healthy people, thirty-five miles from the city, they continued to suffer from their previous exposure to the unhealthy air of Tabriz? During our sufferings, ten or twelve thousand of the King's troops passed this city. They were prevented, by guards stationed at the gates, from entering it, but several of them passed the day under the walls. During the following day, however, the disease manifested itself among them, and they suffered from it very severely.

In this city, water boils at 204° of Fahrenheit. The atmosphere is generally clear, cold, and healthy; and if, in such a climate, this epidemic commits such ravages as almost to equal its effects in many parts of India, I much fear it will extend to Europe, where the crowded cities and great population will make it more severely felt than it has been in the scattered cities and scanty population of Persia*.

* From the Medico-Chirurgical Transactions (communicated in a letter to H. L. Thomas, Esq.), vol. xii. p. 359.

No. XIII.

Remarks on the Morbid Changes of the Fluids in Cholera, on the Susceptibility of Individuals, and on the Treatment. Communicated in a Letter to Dr. Todd of Brighton, from Mr. R. Herrmann of Moscow.

[Medico-Chirurgical Review, July 1831, p. 285.]

1. THE fluids voided by stool and vomiting contained, besides water, some acetic acid, a small quantity of osmazome, salivary matter, butyric acid, and mucus. They resemble very much gastric juice, but do not contain any free muriatic acid. In the alvine discharges, the quantity of butyric acid is greater than in the fluid voided by vomiting; and they contain, besides, some albumen, a fetid, oily matter, and a small admixture of bile.

2. The bile of the cholera patients contains the same ingredients as that of healthy persons: it is, however, more concentrated.

3. The secretion of urine ceases almost entirely during the disease. The urine which first reappears, when the disease has been overcome, contains less urea, and less of the other solid ingredients, than the urine of healthy persons.

4. The blood undergoes considerable changes during the cholera. According to Mr. Herrmann, the blood of healthy persons contains carbonic and acetic acids, in

a free state. The blood of the cholera patients contains much less acetic acid, and the quantity of the crassamentum, relative to the serum, is much greater than in healthy persons; and the increased relative quantity of the crassamentum was found to be in direct proportion to the aggravated nature of the disease.

The blood taken from a patient two hours before his death contained 62·5 per cent. crassamentum, and 37·5 per cent. serum of sp. gr. 1·036 reacting alkaline upon litmus papers. The blood of a healthy person, treated in the same manner, gave 43 per cent. crassamentum; and 57 per cent. serum, of sp. gr. 1·027, reacting acid on test papers.

Mr. H. concludes, from his experiments, that the change of the composition of the blood is effected by a part of its ingredients being abstracted by the discharges by stool and vomiting; and that the blood, by parting with its acetic acid and a part of its watery particles, acquires that greater consistency, and that tendency of separating its fibrine, which is observed during the disease.

Dr. Jochnichen, in his numerous dissections, found invariably fibrine separated in the heart, forming poly-pous masses, partly obstructing the arteries.

5. Mr. H. found the air, immediately surrounding the patient, to contain a substance, which, when deposited upon cooled surfaces, resembled animal mucus. It did not react upon test-papers, and was precipitated by sugar of lead and tincture of galls, bearing great analogy to the substance which Moscati separated from infected air.

Mr. H. is of opinion that, at a certain stage of the cholera, a miasm is developed, and that, under a certain predisposition of the constitution, the breathing of air containing the infectious matter communicates the disease. It appears that, in Moscow, *three individuals out of one hundred possessed this susceptibility for the disease.*

The proximate causes of the symptoms appear to consist in too copious secretion of the gastric juice, in a spasmodic obstruction of the absorbents of the digestive canal and the biliary ducts, and in a degeneration of the blood, which, when arrived to a certain height, terminates the life of the patient by impeded circulation.

The exciting of *copious diaphoresis* is the only efficacious remedy against cholera, and no patient recovered in Moscow without this critical secretion.

No. XIV.

Quarantine in Prussia.

[The following are the regulations adopted by the Prussian Government for preventing the spreading of the cholera.—Berlin, June 16.]

UPON the first news of the breaking out of the cholera morbus in Poland, a sanatory cordon has been established on the Prussian frontier, from the Baltic, near Memel, to the southern point of Silesia, near Cracow. Since then, the entrance, both of travellers and merchandise, from Russia, Poland, and Cracow, has been allowed only at certain quarantine stations, and on production of unquestionable bills of health.

All persons not provided with clean bills of health, as well as goods liable to imbibe infection—viz., bed-feathers, quills, horse or cow-hair, flax, hemp, raw hides, skins, leather, furs, sail cloth, rope, tow, wool, apparel, &c, have been subjected to ten or twelve days of the strictest quarantine and purification.

On the cholera manifesting itself in Austrian Galicia, the Prussian frontier cordon was immediately extended opposite to that Austrian province, from Cracow to the frontiers of Bohemia, which latter frontier itself is placed under observation, in such manner that travellers or merchandise, which cannot be proved to come from a place perfectly free from suspicion, are either refused admittance or made to perform quarantine.

Thus, the whole of the eastern provinces of Prussia

have been surrounded with a frontier cordon, which is continued on the part of Saxony, whereby the evading of the Prussian line is rendered impossible.

On receipt of accounts of the cholera having shown itself at Riga and Dantsic, the precautionary measures have been increased, so as no longer to look upon bills of health for travellers or merchandise proceeding from Russia, Poland, or Gallicia, as free from suspicion; consequently, individuals and goods coming from those parts, are only admitted after a quarantine and purification of twenty days, notwithstanding any bills of health they may be provided with. Upon the same principle, no vessel coming from Russia is admitted into a Prussian port, until after a quarantine of twenty days, and the established purification. In addition to which, vessels coming from Russia can only be admitted into such Prussian ports as are provided with quarantine establishments—viz., Memel, Pillau, Dantsic, Swinemunde, and Greifswald.

All vessels proceeding from Dantsic to another Prussian port are dealt with as if coming from Russia.

Vessels sailing from ports in the Baltic, not Russian, are only admitted into Prussian ports, if provided with clean bills of health; and will even then be placed under observation for eight days, should they come from a place in which the precautionary measures are less strict than those adopted in Prussian ports.

Hitherto, Dantsic is the only place in the Prussian dominions in which any trace of cholera morbus has manifested itself; this town is guarded on the land side in the same strict manner as the Russian and Polish frontiers.

No. XV.

Report on the Cholera in Russia ; addressed to the British Government, by Dr. Walker, of St. Petersburg.

St. Petersburg, April 17, (29).

I HAD the honour of reporting to you from Moscow, for the information of the Lords of his Majesty's most Honourable Privy Council, upon two of the points respecting the disease prevailing in this empire, and stated my conviction that it was not the plague, but the same disease with the cholera morbus that had ravaged the territories of the East India Company. I also stated, that I deemed it absolutely necessary, for the purpose of procuring further information on the other points laid down in my instructions, that I should proceed further than Moscow. I was afterwards induced to change the plan detailed, in so far as not to go to Nishni Novgorod, as I found, from inquiries which I was afterwards enabled to make at Moscow, that I was not likely to get any information there worth the great delay which, from the season of the year, I must incur by going there. As the disease appeared to be at an end at Moscow, and as various official documents which I had required for assisting me in the duty intrusted to me, could not be ready under two or three weeks, I determined, therefore, to set out immediately for Jaroslaw, and the rest of the places which I had mentioned in my letter that I intended to visit. I was excessively delayed by the bad-

ness of the roads, having been, for instance, nearly six hours in going the first stage of not quite fifteen miles from Moscow. On my arrival at Jaroslaw, I found that the disease had already ceased in the town of Vologda ; and that, with the badness of the roads, and one certain quarantine, and perhaps two, I should be detained much beyond the time I was, by my arrangement with Lord Heytesbury, warranted to employ, and I therefore gave up my intention of going to Vologda, and proceeded along the Volga and road by which the disease approached St. Petersburg last year. The roads were in such a shocking state, that I could travel only very slowly ; and being detained also four days by the breaking up of the ice on the rivers, I was thirteen days in coming from Jaroslaw, a distance which, either in winter or in summer (even with the halts necessary for my inquiries), would not have required above half that time. I was exactly seven weeks absent from St. Petersburg.

I hasten to communicate the results of my own observations, and of the information which I have been able to collect from others respecting that most important point, the contagious or non-contagious nature of the disease.

In Moscow, by far the greater part of the medical men are of opinion that the disease is not contagious, but produced by some peculiar state of the atmosphere, not cognizable by either our senses or by instruments ; that this was proved by almost every person in the city feeling during the time some inconvenience or other, which wanted only the exciting cause of catching cold, or of some irregularity in diet, to bring on cholera ; that

very few of those immediately about the patients were taken ill. That persons had put on the clothes of patients who were very ill or had died of cholera, had lain in their beds, or even alongside of corpses, had bathed in the same water where very bad cholera patients had been bathed just before, and that none of these persons were taken ill. That a strict investigation had been made into what were reckoned the first four cases occurring in Moscow, and that it was proved that they had neither themselves been in any infected place, nor had communication with any one coming from such a place. I confess, however, I am not quite satisfied with this, because—first, in a place of such an extent as Moscow, every one can conceive it perfectly possible that there may have been cases before these without its being known, and I have the certainty myself of its being possible, for it occurred to me, while I was there, to know of four cases that had never been reported to the police, nor seen by a medical man.

2d. One of the four cases had only a few days arrived from Simbirsk, so that he might have brought the seeds of the disease with him, because the disease was in the district of Simbirsk in the end of August, and he died in Moscow, I think, on the 16th of September.

3d. This investigation was not made by medical men, but through the police, which I do not reckon the proper method, as the people are so afraid of them, that it is next to impossible to get at the truth.

I am also not quite satisfied that there were so few of the attendants in the hospitals taken ill, for I have a printed statement (or rather a copy of it) of one hospi-

tal, and oral information of two others, in which the attendants were taken ill in a far greater proportion than out of hospital. I had, of course, immediately on my arrival in Moscow, requested such a statement of each hospital; and as all the cholera hospitals, except two, had already been shut up some time, I expected it would have been furnished immediately, as I found that all the medical gentlemen expressed, and indeed showed, the utmost readiness to communicate every information, and a statement was already printed of the patients in each hospital, but in which that most important point of the number of attendants taken ill was not attended to. Not having received it, after repeated applications, I had it mentioned three days before I left Moscow, to the Governor Prince Dirnitri Gallitzin, who, in my presence, desired the Secretary of the Medical Council to write to the different gentlemen, that he ordered it to be furnished without delay. It is now four weeks since I left Moscow, and I have not yet received it, so that I am not able to adduce the experience in the hospitals as in favour of either opinion, and begin to fear that accurate accounts may not have been kept of those cases. Still all these gentlemen (the anti-contagionists) acknowledge, that where a number of cholera patients are collected together, it is perfectly possible that the disease, like some others, may become contagious. I did not learn that the contagionists in Moscow had any strong particular instances to prove the communication of the disease from one individual to another. Indeed, one gentleman confessed to me that he himself having been so strongly convinced

of the contagious nature of the disease, he supposed that it was not doubted by any one, and therefore never thought of searching out and establishing the facts which could prove that the opinion was founded on undoubted facts. One gentleman, who was the inspector of the hospital of which I have a copy of the printed statement as abovementioned, was at first a non-contagionist, but found himself forced to adopt the opposite opinion, because so many of the attendants at the hospital under his superintendence were attacked with the disease.

In the rest of my journey, however, at Jaroslaw, Minsk, Mologa, Ustuskna, Somina, Titzvin, through all which places the disease made its approaches towards St. Petersburg, and where, from the small extent of the field of observation, every case came under more immediate inspection, I found every where the medical men and others convinced that the disease was brought to them somehow or other by the boats which came up the Volga from Nishni Novgorod, and other places where the disease had been; they said that the first attacked with the disease were always boatmen, and it was only afterwards that the disease appeared among the towns-people. Only at Jaroslaw it was doubtful whether the first was not a merchant, who had been to the fair at Nishni. But after the disease got into a town, that it could not be traced from one to another, and that very often, perhaps most frequently, only one in a family, while in others every one was attacked with it.

Combining this with its slow and gradual progress from Astracan (whither one party consider it proved that it was brought by a vessel from Saliandy, which the other party deny) along the great lines of water communication, I think it more than probable that it is carried along by men somehow or other, although it has not been ascertained in what way. It has been alleged that it follows the tracts of rivers, not because it is carried by people going along them, but because the miasma, or whatever it is that predisposes to, and excites, the disease, has a great affinity to humidity. But if this were the case, it should go along all rivers and streams, whereas I believe it follows only those where there is navigation; and it also would not proceed along the great roads, as we are assured it does more than along others which are less frequented. The question is a very difficult one, and the disease has manifested the same caprices in its progress in Russia that it showed in India, missing occasionally places that lie directly in its route, and not attacking them till some time after; attacking sometimes the high situated houses in towns, but more frequently the lower ones.

With respect to the possibility of the disease being communicated by clothes or goods, no cases have as yet come to my knowledge sufficient to prove it. I have heard of several instances brought forward in support of the opinion, but they are not fair ones; as in all of them the persons had either come from places where the disease was, or it was already prevalent in the place where they were living. And by far the most

general opinion, even among the contagionists, is, that it is only through the medium of the body that it is propagated.

So that the result of what information I have been able as yet to collect on the subject is, that I believe it is capable of being conveyed from one place to another by men, although it cannot be considered completely proved; while, although there is not evidence sufficient to prove its communication by clothes or goods, still we cannot say that it is impossible.

I have mentioned to several an experiment suggested by Sir William Pym—viz., that condemned felons should be induced, by a promise of pardon, to put on the clothes and use the bedding of persons who had died of Cholera, while every thing should be arranged so as rather to favour the action of contagion. But I have not found any person willing to propose it here, where, besides, there is the great objection that there is no capital punishment.

Although it does not admit of legal proof, yet there is no doubt that, from the great difficulty, or indeed impossibility, of keeping quarantine strictly in such a great extent of country as that where the disease prevailed last summer and autumn, numbers of persons and quantities of goods from infected places evaded the quarantines, and came even to this city, but fortunately without bringing the disease.

I may state, that also the Prussian and Austrian medical gentlemen, who have been sent here by their respective Governments, have adopted the same opinion

with myself; the Austrians could speak more decidedly, as they had seen a good deal of the disease in the southern provinces, before they came to Moscow.

Although such is my opinion, yet I should not conceive it necessary to have any quarantine for vessels arriving in England from Russia, unless the disease prevailed at the place of loading or in the neighbourhood; and even then, perhaps, only in the event of any person on board having had the disease during the passage. For although there are not as yet any observations regarding the length of time that the disease may lie dormant in the system, the general opinion is, that it does not probably exceed fourteen days, and therefore there would be little or no risk in admitting a vessel that had been at least fourteen days on her passage, without having any sick on board. Persons, however, might get in a considerable shorter time from here to England, by the steam-boat to Lubeck, if there should not be any quarantine there.

All sort of goods, except tallow and linen, are, I am told, opened out in the most complete manner here, and handled for the purpose of being bracked, so that if they could communicate the disease, they would in all probability do it here before they could be sent abroad.

With respect to the present state of the disease, it still prevails in the southern and western frontiers. A few cases, eight or nine, occurred in Moscow after I left that city, and I should not be at all surprised if a case occurs still now and then for some time. Whether it will again increase with the warm weather is a complete

conjecture, as there are no data to form an opinion upon it; but there is still a sort of apprehension, of which people cannot entirely divest themselves. I found that five cases (and all fatal) had occurred in the town of Ustuskna, 460 versts from hence, in the course of the 10 days, just before my passing through, *i. e.*, from the 19th to the 29th of March; but I have not been able to learn whether any cases have occurred since. That, I believe, is the nearest point at which it has been since the autumn. As the Government of Vologda, where the disease has prevailed to a considerable degree not long ago, has more direct communication I believe with Archangel than with this place, it is not improbable, I think, that if the disease still spreads, it will get there before it comes here.

With respect to the progress, nature, treatment, &c., of the disease, I am busy collecting materials for a complete statement, which I shall lose no time in forwarding to you when ready, for the information of their lordships.

Postscript.—I find the expressions I have made use of here, have appeared to others not to convey quite the meaning I myself attach to them. I intended to say, that I myself am convinced of the contagious nature of the disease, but that the proofs of its transmission from one individual to another are not quite perfect as yet. And believing so, I cannot, of course, be without some apprehension that it may also be conveyed by clothes and other articles, which have been in more immediate contact with the sick, although the proofs of this are, as

yet, still more defective. It is a disease *sui generis*, and must have its own laws as well as the plague, typhus fever, and other contagious or infectious disorders, but these laws we do not yet sufficiently know. Its attacks seem to be favoured by depressing passions, especially fear of the disease, great fatigue, low bad living, bad air in crowded dirty dwellings, drunkenness. I have been informed that in Austrian Galicia, where it had made its appearance, a better diet furnished to the lower orders, at the expense of the Government, seems to have contributed as much as any other measure to prevent the spreading of the disease.

No. XVI.

*Detailed Report of the Royal College of Physicians of
London, on the Documents laid before them respecting
Cholera.*

College of Physicians, June 18, 1831.

IN compliance with the further wishes of the Lords of His Majesty's most Honourable Privy Council, that we should state in detail the reason of the opinion contained in our report, dated June 15th, we beg to submit to their Lordships the following statement, observing at the same time, that the information in the documents laid before us is deficient on some important points, particularly with respect to the description of the disease.

Our knowledge of the symptoms of the disease called cholera morbus, in Russia, is derived entirely from a report drawn up by Sir W. Crichton, at St. Petersburg, for the medical council of that capital, from reports of medical practitioners in different parts of Russia, where the disease had appeared. We have, however, no direct information from any Russian or other physician who had actually seen the disease. The remarkable facts attending its progress and manner of extension over the vast tract of country in which it has successively appeared, are as follow:—It showed itself at Astracan, near the mouth of the Wolga, on the 20th of July, 1830, immediately after the arrival of a vessel there from the

port of Bakun, on the western coast of the Caspian sea ; on board which vessel, during the passage, eight men had died of the disease. From Astracan, it spread itself in an eastern direction to Gourieff, and far up the course of the river Owrah ; and at the same time proceeded northward, in a course following strictly the great line of river communication of the Wolga ; affecting successively all the principal towns on each bank of the river, as far to the north as Yaraslov, and at dates corresponding with the ordinary rate of the navigation up this stream. The earliest deaths at each place usually occurred among the boatmen employed in the navigation.

It is an important fact, that while thus ascending the course of the Wolga in a north direction, it was contemporaneously conveyed down the course of the Don in a south-west direction to the sea of Azof, and to the coasts of the Black Sea, and details are given, warranting the belief, that it was carried by personal intercourse across the neck of land which separates these two great lines of water communication.

The disease appeared at Moscow in the first or second week of October, alleged to have been brought thither from Saratoff, an infected town on the Wolga. At Moscow it prevailed during the coldest months, having first appeared in the south part of the Russian dominions during the hottest season of the year. Quarantine was established on the road from Moscow to St. Petersburg. Upon this road the disease has never extended itself ; but on another line of approach to St. Petersburg from Saratoff, where no quarantine was established, the disease advanced as far as Tikhvin,

within one hundred and sixty miles of Petersburg, where it appears also to have been arrested by quarantine.

It is important to mention here, that the Moravian colony of Sarepta, on the right bank of the Wolga, several German colonies in the government of Saratoo, around which the disease raged with great severity, and the school of Military Cadets at Moscow, were exempted altogether from the disease: strict precautions having been used in each of these several instances to prohibit all intercourse with the surrounding population.

The mode of ingress of the disease into Podolia and Volhynia is not equally certain; but it appears to have followed the great lines of communication between the southern parts of Russia and those provinces, and to have accompanied the march of the armies in this direction.

The disease appeared very early in May, on the road between Posen and Warsaw, and in the army of the Grand Duke Michael; subsequently at Praga and Warsaw, and in the Polish armies. A report, drawn up by a Board of Health of Warsaw, and transmitted to the French government, and thence to the English government, gives a statement of the numbers infected during seven days in the hospitals of Warsaw and its neighbourhood.

The latest accounts we have before us are those regarding the extension of the disease to the sea-ports of Riga and Dantsic, on the Baltic, and the great mortality which has occurred in the former of these places.

From the progress of this disease, uninfluenced by latitude or by seasons, through various districts in the Russian empire, following gradually the courses of great rivers and roads, in other words, the general line of traffic and communication, and from the fact that different towns situate in its route were exempted from its visitations by establishing a system of non-intercourse, we are of opinion that the disease called cholera morbus in Russia is of an infectious nature. Our decision is corroborated by the opinion of Sir William Crichton, of St. Petersburg; by the measures taken by the Russian and Prussian governments; by the statement of the English physician, Dr. Walker, sent from St. Petersburg to Moscow, who, after much hesitation, decided peremptorily in favour of contagion; by that also of Dr. Albers, sent by the Prussian Government, who first entertained a suspicion that the disease was contagious, afterwards doubted, and at last determined upon its contagious nature. We beg again to call your Lordships' attention to the circumstance, that neither the statements of Dr. Walker, nor those of Dr. Albers, nor those of the Report of the Committee of Health at Warsaw, contain any description of the symptoms of the disease.

We have not evidence before us sufficient to decide whether this disease be communicable by merchandise or not; there are some statements which appear to support the latter opinion, but they are neither numerous nor distinct enough to convince us that this disease does not and will not observe the laws which regulate other infectious disorders.

Should the Government be enabled to lay before us hereafter a more precise account of the disease, and a more enlarged statement by which the propagation of its infection may be distinguished from that of other infectious diseases, we shall be very ready to re-consider our opinion. But until such information can be obtained by us, called upon as we are to consider the security of the public, we can give no other opinion with respect to the transmission of the disease by merchandise, than that we think the safety of the community will best be consulted by submitting merchandise to the usual regulations of quarantine; and we can at present make no other distinction of articles than is made by the law established for this purpose.

No. XVII.

*Extracts from Deputy Inspector Farrell's Report at
Columbo, in Ceylon.*

HAVING ravaged the provinces of Bengal, and extended its course into the Peninsula of India, it in no great length of time embraced the whole tract of country lying between the Ganges, the Nerbudda, and Cape Comorin. Its progress along the coast of Coromandel excited apprehensions in Ceylon; and it must be allowed that the first alarm raised by its appearance in this country was in the Province of Jaffua, which lies opposite the places on the Continent of India, where it was committing great ravages at the time. Very shortly after we had heard of its appearance at Jaffua—a well marked case of it occurred in a soldier of the 83d regiment at Columbo, and it soon afterwards manifested itself in different parts of the island.

It might be inferred from a superficial consideration of the foregoing sketch of its progression, that it was produced and propagated by a specific contagion, and it must be confessed that some of the circumstances are of a character to give weight to such an opinion. But upon a closer examination of the subject it will, I apprehend, be found that the position cannot be maintained, and that many of the facts observable in its progression are at variance with the acknowledged laws of contagious diseases.

In the first place it was found, that on appearing at any one place, it attacked almost at the same instant a vast number of persons, who, from their habits, modes of life, and separation of their abodes, could not possibly communicate it to one another.

And in the next place it was observed that attendants on the sick, or persons resident in the same house, or even in the same ward of an hospital, with patients labouring under it, were not more liable to its attacks than others differently circumstanced. Indeed, it has been known to attack patients who had been admitted into hospital for other complaints, to have carried them off with its usual rapidity, and not to appear again in the same hospital, although it raged in all directions around it. These are strong facts, and if they do not disprove its contagious nature, they show, at all events, that it is propagated in a manner different from all known contagious diseases.

I do not know to what portions of the earth this disease is limited, and it may be that there are no limits to its range, for we have accounts of affections not unlike it in England and other northern countries. I am, however, disposed to think that it very rarely occurs in its most intense form in cold latitudes.

In short, its progression in this island cannot be accounted for on any recognised principle of winds or seasons.*

* For his kind permission to make use of this and the three following documents, I am indebted to the liberality of Sir James Macgregor.

No. XVIII.

Report on the Mauritius.

1. On the 5th September, 1819, a soldier was sent from the main guard to hospital, affected with great thirst, constant vomiting, violent cramps in all his limbs, coldness and lividity of the legs and hands, a small pulse, and confined bowels. (Mr. Markham's Diary.)

2. On the 6th September a Black, under the care of a French surgeon, died with all the characteristic symptoms of the epidemic.

3. On the 29th October the *Topaze*, a 56 gun frigate, anchored in this harbour from Ceylon, after a very unhealthy voyage, during which several men had died of Cholera Morbus. The following day she sent thirty cases of chronic dysentery, hepatitis, and general debility to the hospital of the 56th regiment*.

4. On the 18th November Cholera first appeared in its most severe form among the African slaves and Indian convicts, several of whom were that day admitted into the civil hospital.

5. A few days afterwards a European sailor, under

* I have the surgeon of the frigate's authority, as well as personal observation, in stating, that not one of those patients laboured under symptoms of Cholera at the time of disembarkation; but, it should not be concealed, that a medical officer, who had gone on board the same forenoon, saw one man affected with severe vomiting and spasms.

treatment, I believe, for ascites, in the same hospital, fell a victim to the reigning disease.

6. On the 29th November the first fatal case occurred in the 56th regiment.

7. Though the disease originally broke out in Port Louis, it afterwards visited the principal outposts and habitations in the island, and, soon after running its course here, appeared at Bourbon, in defiance of a most rigorous quarantine.*

8. A considerable number of sailors belonging to merchant vessels, lying near the shore, died of Cholera, whereas not a soul belonging to the *Topaze*, which lay about a mile and a half from shore, but communicated constantly with it, was attacked after her arrival.

9. With the exception of Reed, no patient or hospital attendant was attacked at head quarters; this, I understood, was far from being the case at an outpost seven miles from town.

Lastly. No children, and a very small proportion of females were attacked; but convulsive affections, resembling hysteria, were unusually frequent among the European and Mulatto women belonging to the regiment†.

* The mode in which this quarantine was evaded and rendered ineffectual is explained in Chapter XI.

† Extracted from a Report to the Army Medical Board by John Kinnis, M.D., dated from Port Louis, 31st March, 1820.

No. XIX.

*Extract from the Report of the 89th Regiment at Quilon,
in Travancore, on Spasmodic Cholera.*

WHETHER or not this singular disease be contagious is a question upon which opinions are divided. If we consider merely the progress of the disease from station to station since its first appearance, we shall, in most instances, perceive circumstances which strongly favour the belief in contagion, while, on the other hand, we must admit that the great numbers which are, it may be said, simultaneously attacked—the numbers being generally greatest during the first days after it has appeared—and the disease appearing and disappearing suddenly, are phenomena in the history of this epidemic, not easily explained on the supposition that it is propagated by contagion.

With regard to the progress of the disease, it has been remarked, that it has almost uniformly accompanied or followed shortly after the arrival of troops returning from infected districts, and among whom the epidemic either prevailed at the time or had done so not long before.

The towns and villages most remote from the high roads by which the troops passed, often remained a long time exempt from the disease after it had broke out in those which lay more in the way of the passage of the

military, or which were more frequented on account of commercial purposes.

It is certain that the epidemic Cholera appeared at Bombay a few days after the arrival there of a native who left Poonah while it was raging there, and who died of it the day after his arrival at Bombay.

At Trichinopoly the disease broke out a few days after the arrival of a detachment of Sepoys that left Madras during the prevalence of the epidemic there. Numerous other facts might be adduced in proof of this connection of the epidemic with military and commercial intercourse.

Whether this disease can be communicated by contact is a question I am unable to determine; some facts which have fallen under my own observation might seem to justify the answering the above question in the affirmative, but as I have heard of none of a similar kind corroborative of them, they must, I apprehend, be regarded as accidental. I shall, however, state them, leaving every one to draw his own conclusions.

On the 10th July, 1819, after having been for several hours in close attendance on a patient labouring under the epidemic Cholera, I was threatened with an attack, but which was happily warded off. On the morning of the 11th July two more cases of the epidemic were admitted into hospital, and as I had not sufficiently recovered they were attended by my assistant, Mr. Gray, until the afternoon, when I was again able to give him my assistance. Mr. Gray was himself seized with the epidemic in the night following, and the attack was so violent, that at one time his life was quite despaired of.

Mr. Gray was attended during his illness by two officers, his most intimate friends, both of whom had severe attacks after a lapse of a few days.

A corporal who always attended the sick from the barracks to the hospital was nearly about the same time attacked and died. The same fate befell the soldier who was employed as hospital orderly. My hospital serjeant had a most severe attack, and had very nearly fallen a victim to it, and one of the half cast lads attached to the regiment by government as a medical pupil had also an attack, but a very mild one in comparison of the others. But whatever doubts may exist on the subject of contagion, there can be none that the disease is more or less prone to occur according to the greater or less exposure to nocturnal cold and damp, to great and sudden variations of temperature, and to fatigue. This is proved by the acknowledged fact, that for several months past the complaint has almost disappeared, except among bodies of troops on their march from one station to another, and they are then necessarily exposed to all the causes above mentioned.

In such situations even the European officers cannot entirely escape their influence, and we accordingly find that of the number who have fallen victims to the epidemic, all, or almost all, have been attacked while marching from one station to another. The camp followers, as they are left to shift for themselves, no tents being provided for them, and having seldom the means to protect themselves by warm clothing from the chills of the night, suffer most of all, next the Sepoys or soldiers, and, last of all, the officers.

The 1st battalion of the 5th Regiment of the native infantry, of about one thousand strong, marched from thence about the close of last year for Bangalore. The families of the Sepoys and camp followers of every description amounted to about four thousand, making in all a body of five thousand.

The epidemic cholera had disappeared at Quilon some considerable time before the battalion commenced its march, and no case of the epidemic had occurred in that corps for a much longer time.

On the morning it marched from Quilon one Sepoy was attacked, and two or three more daily for the following ten or twelve days. The battalion had by that time reached the Gohaut, or mountains, through which they had to pass to their destination; the march became more fatiguing, and they were often exposed to wet in crossing the mountain streams which at that part of the road very frequently intersected the line of march.

The epidemic then began to rage in the most appalling manner, and in the short space of eight days cut off no less than eleven hundred, of which number there were no more than about two hundred and fifty Sepoys.

No European officers were attacked. Instances of an equally great mortality in bodies of troops on their march in different other parts have been, I am told, not unfrequent. The exemption of the civil servants of the Honourable Company from the epidemic is worthy of notice; they are generally resident for several years at the same station, and when they travel, do so without being exposed to the fatigue or discomfort to which the military are subject. Up to this date I have not

seen or heard of the death by epidemic of more than one civil servant belong to this Presidency.

But if the disease were contagious, we might expect that the civilians would have suffered equally or even in a greater degree than the rest of the European part of the community, inasmuch as their intercourse with the natives is greater than that of others.

No. XX.

*Extract from the Report of Surgeon Jackson, 14th
Foot, on Cholera.*

IN April, 1820, was held the great fair of Hurdwar, on the banks of the Ganges, where it is only a small river issuing from its native hills, and supposed to be peculiarly sacred. From the immense concourse of people assembled, a million and a half, the Brahmins foretold that Cholera would appear, but though they were not borne out in their prophecy, yet the visitors from the hill country took back the disorder to their native villages, which are small and insulated as far as the foot of the snowy mountains, a tract of country hitherto spared and thought inaccessible to the disorder; carrying off nearly one-half, and, in some villages, even more of the inhabitants.

A further Extract.

IN support of non-contagion many proofs are brought, such as an individual being attacked in the midst of a barrack, and carried off in a few hours, and none of his comrades suffering.

Troops attacked on a march through an open country; officers in their boats on the Ganges, far from any

source of contagion, so that this doctrine is at present most general.

The probability is, that like many other diseases, when concentrated into a small and crowded place, it may become much more malignant, and indeed highly contagious.

No. XXI.

*Circular of the Polish Government respecting the
Cholera Morbus.*

Europe is no longer ignorant of the ally which the Emperor of Russia has called to his assistance for the purpose of consummating the work of exterminating the Polish people. Ever since the battle of Iguinie we have had to struggle against that contagion, which attacked us not only in the camp, but even in our capital. Notwithstanding a danger so imminent, which threatened the repose of families and the security of the whole population, the nation preserved its calmness. The National Government caused the most energetic measures to be taken for the purpose of arresting the progress of this evil. The physicians lavished all their care, and skill, and experience, and the result was that all traces of the Cholera Morbus soon disappeared. We were already congratulating ourselves upon having deprived our enemies of one means of injuring us, and upon having rendered a fresh service to Europe, but on the 26th of May the battle of Ostrolenka brought the two armies into contact, and the Cholera once more made its appearance, as well among our soldiers as among the inhabitants of Warsaw. The Government redoubled its cares and its precautions, but was per-

suaded, at the same time, that we should never be able to shelter ourselves from this scourge so long as hostilities continued. Poland awaits with calmness and with resignation the accomplishment of its destinies : no danger terrifies her, but do not the Powers of Europe feel the obligation they are under to arrest the progress of this scourge, which is advancing towards the west, and which threatens every state ? Preventive measures, *cordons sanitaires*, quarantine,—these will be of no use. The physicians of Berlin have lately made a report upon the Cholera, which demonstrates that all precautions will be useless, and that there is nothing but a cessation of hostilities which can avert from Europe the dangers that threaten her. This report has been confirmed by the appearance of this disorder in Galicia. It has already manifested itself at Leopold, and will shortly carry its devastations further.

‘ It was the troop of Count Pahlen which brought the Cholera into Poland; but this troop occupied Siedlec, and did not fight at Ostrolenka. The contagion, therefore, is general in the Russian army, and each contact with any body of the enemy is dangerous.

‘ The plague which inhabited Turkey has changed its residence, and has now established itself in Russia. It may, perhaps, be useful to remind Europe, that Russia has more than once ranked among the number of the motives which forced her to declare war against Turkey, the duty of protecting Europe against the introduction of the plague.

‘ We announce to you positive facts, and we ask you

whether this new consideration does not impose upon the European Powers a new obligation to interpose itself between the Polish nation and the Emperor of Russia, for the purpose of staying the effusion of blood, and of preventing those calamities with which Europe is threatened ?

‘ *June 1, 1831.* ’

No. XXII.

General Count Toll has supplied the following details of the death of Field Marshal Diebitsch, who is stated to have been the victim of this disorder, to which he was probably predisposed by anxiety :—

‘ On the morning of the 28th of May (June 9) the Field-Marshal had felt himself unwell, but during the whole day he appeared in good health, had eaten, and seemed in good spirits, as usual, and there was nothing that excited any apprehension for his health. In the evening he went to bed at ten o'clock, as he had been used to do for some days past. He was soon called up to attend some business, and still appeared quite well. About two o'clock in the morning he suddenly felt indisposed, and called to his attendants, but forbade to awake any body, or even to fetch a physician. It was not till past three o'clock, that, finding himself grow worse, he ordered M. Schegel, Physician in Ordinary to the Emperor, to be called, but desired that nobody else should be disturbed. When the doctor came he saw symptoms of cholera, which soon became very violent. The severe attacks which usually accompany this disorder last several hours. The patient was immediately bled, leeches were applied, and very strong friction employed; in short, no means that might afford relief were neglected. The Field Marshal retaining all his presence of mind, ordered every person, except the

medical attendants, to quit the room, for fear of their taking the contagion. About seven o'clock the physicians succeeded in producing perspiration, and the patient became rather more easy. Up to this moment the cramp had been but slight, and the patient suffered only from the alternate fits of shivering and burning heat. Between seven and eight o'clock cramp commenced in the legs and in the internal parts of the body, and the intermitting pains, which seemed insupportable, continued till near ten o'clock, when the groans of the patient became less frequent, but his vital powers evidently diminished; the breathing became more and more difficult, the patient soon fell into a kind of lethargy scarcely interrupted by the unfrequent motions of the head; the eye-sight failed. At a quarter-past eleven the irreparable loss which we have sustained took place.'

No. XXIII.

*Proclamation of the Royal Departments of Marine,
Finance, Trade, and Customs of Norway.*

‘ ALL travellers arriving from places in the Baltic must be provided with a bill of health, attested by a Swedish and Norwegian Consul, if such a functionary reside at the place ; without a similar certificate no one can be admitted into the kingdom.

‘ The Magistrates have it in command strictly to adhere to this, and, on the arrival of a person without a bill of health, to consult with the Board of Health, in order that efficient measures may be taken according to the nature of each individual case. It being ascertained that out of one hundred and sixty-nine deaths in three days at Riga, about an eighth part had been carriers of hemp, the respective Quarantine Commissions have been directed to take necessary precautionary measures with regard to hemp, flax, rags, and all other articles susceptible of infection, which of late may have been imported from the Baltic.

‘ Masters of Norwegian vessels must be particular in providing themselves with bills of health on proceeding to a foreign port, which must be signed by the Consul or Vice-Consul of the country to which he is destined, or, where such a functionary does not exist, by some other foreign Consul.

‘The Departments have requested the respective Norwegian and Swedish Consuls, or Vice-Consuls, in Danish ports in the Baltic, the Sound, and the Belts, as well as the Consuls at Griswold and Lubeck, to make known to mariners, that all vessels, bound to Norway from Danish ports in the Baltic, the Sound, and the Belts, must be provided with bills of health from the place of departure, signed by the Norwegian and Swedish Consul, or Vice-Consul, or, for want of such a one, by some foreign resident Consul or Vice-Consul. The want of a bill of health will subject the vessel in Norway to quarantine.’

Christiania, June 20, 1831.

No. XXIV.

Report on the Cholera Morbus, discussed and agreed to in the Extraordinary Committee established at Moscow, by order of his Majesty the Emperor.

AN extraordinary committee, composed of the most eminent public officers, has been established at Moscow, by order of his Imperial Majesty, for the purpose of discussing the expediency of a general purification of all merchandize in Moscow after the cessation of the Cholera Morbus in that capital. The committee, in consequence, proposed the following question to the members of the provisional medical council. Can goods or merchandize communicate the Cholera Morbus? and in case of an answer in the affirmative, what is the degree of the intensity of the contagious principle? The result of the examination of the opinions of the twenty-four members of the council is, that three of them admit, it is true, the possibility of contagion by means of goods and merchandize, but under certain conditions: eighteen entirely reject it. One member admits it; but from the experiments which he has made, he does not think fumigation necessary. Another member recommends the adoption of this measure, but only for the purpose of tranquillizing men's minds. Finally, another declares that he knows no fact which proves the communication of the Cholera Morbus through the

medium of material objects. He thinks, however, that it will be useful to apply fumigation to some kinds of merchandize, such as cloth, by employing chlorate of lime, and merely to expose all other goods to the air. The committee having given to the examination of this subject all the attention which the importance of the question demanded, and which the orders with which they were honoured by his Imperial Majesty enjoined them, have unanimously come to the following conclusions :—

1st. The quarantine regulations relative to the purification of goods and merchandize have been established from observations made on the plague; they have therefore been adopted, under the present circumstances, entirely by conjecture. Nevertheless, it was impossible to avoid adopting these regulations as long as the contagious influence of the Cholera Morbus, and the means by which it spreads itself, were not yet determined by accurate observations. It is necessary, then, to replace these ancient regulations by others more appropriate to the new disease, and equally founded upon evident facts.

2d. It has not hitherto been possible to collect in any place in the empire so many accurate observations on the Cholera Morbus, nor to unite on one spot so many able physicians, as at Moscow, where, during the three last months, more than seven thousand five hundred sick were treated by the care of the provisional medical council, and fifty-two bodies dissected. It is only, then, in this capital that the examination of all the opinions pronounced on the Cholera Morbus—opinions hitherto conjectural, contradictory, and founded on a small

number of equivocal or ill-observed facts—can be preceded in with the best chance of success.

3d. Although the members of the provisional medical council have not pronounced an unanimous opinion relative to the communication of the Cholera Morbus by means of goods and merchandize, nevertheless the majority at least pronounced against this hypothesis, and the opinions of the minority destroy themselves. They offer many contradictions, and do not correspond with known facts. For example, a member advances, 'that the virus of the disease (*virus morbigue*) of the Cholera Morbus is not so subtle as that of the plague;' he then adds, 'that it is proved, by a great number of examples, that persons in health have been attacked by the epidemy, from having made use of beds or clothes which had belonged to victims of the Cholera.' In fine, he maintains 'that it is more by analogy than from positive experiments, that it may be affirmed that goods which communicate the plague would equally communicate the Cholera Morbus.' If this member merely founded his opinion on the analogy which he believes to exist between the plague and the Cholera, it would follow, that he ought not to have mentioned the number of examples which he might have observed, even on the supposition that a physician who only treated three hundred cases of Cholera, may have been able to collect an infinite number of observations. In fine, his assertion on the analogy between the Cholera and the plague is in contradiction with the difference which he himself says ought to exist between the contagious principles of these two diseases. The second member who declares

the Cholera Morbus contagious, expresses himself in these terms: 'This epidemic disease cannot arise either from a change of temperature or from the nature of the food, or from confined habitations, or from bad clothing;' while he subsequently refutes himself by saying, 'aged people, or those who lead an irregular life, those who are subject to catch cold, or to stomach complaints, or, in fine, who are not regular in their diet, are more exposed than others to the action of the Cholera Morbus. The third member of the minority gives the following example in support of his conviction of the possibility of the communication of the Cholera Morbus by goods and merchandize: 'An individual who was suffering of a quinsy was attacked by cramp in his legs, from having bathed his feet in a vessel which had been used to empty the bath of a *colérique*.' Still if in truth the Cholera Morbus spreads itself in this manner, it is not probable that such a case should be observed but once during the treatment of more than 7500 sick. It must then be concluded that the cramp was brought on by some other cause, which has escaped the investigation of the physician.

4th. On the contrary, the opinion of those who do not admit the possibility of contagion by means of material objects, has for its support both the majority of voices and the scrupulous observance of facts. The members of the medical council have been convinced by their own experience, as also by the reports of the physicians of the hospitals, that, after being in frequent and even habitual communication with the sick, their own clothes have never communicated the disease to

any one, even without employing means of purification. Convalescents have continued to wear clothes which they wore during the disease, even furs, without having them purified, and they have never had a relapse. At the opening of bodies of persons who had died of the Cholera, to the minute inspection of which four or five hours a day for nearly a month were devoted, neither those who attended at these operations, nor any of the assisting physicians, nor any of the attendants, caught the infection, although, with the exception of the first day, scarcely any precautions were used. But what appears still more conclusive, a physician who had received several wounds in separating the flesh continued his operations, having only touched the injured parts with caustic. A drunken invalid, having also wounded himself, had an abscess, which doubtless showed the pernicious action of the dead flesh, but the Cholera Morbus did not attack him. In fine, foreign savans, such as Moreau de Jonnés and Gravier, who have recognised, in various relations, the contagious nature of the Cholera Morbus, do not admit its propagation by means of goods and merchandize.

5th. A member of the committee justly observes, that the trade of Moscow, after having languished at the time the Cholera Morbus reigned there with all its force, recovered its activity in November, when the epidemy was becoming weak ; and that since the first cold, there has been a considerable circulation of merchandize, as well of that manufactured at Moscow as imported into it. Moreover, if the germs of the contagion had been concealed, their action would have

shown itself either in individual cases, or in the return of the ravages of the epidemy through the town, and in the increase of the number of victims. This not having taken place, it is conclusive that the disease does not spread itself through the medium of material objects.

6th. On the contrary supposition, the result would be, that since 1500 of the 7500 above-mentioned sick were taken care of at home, and in consequence exempt from the active superintendence of the medical police, the articles (effets) with which their houses were furnished, and with which the sick were in constant contact, would rather tend to spread the contagion than merchandize deposited in magazines which had not been touched by any one. It would become then much more necessary to purify effects shut up in every house in Moscow, than the merchandize. The almost total cessation of the epidemy evidently shows that no general contagion has taken place by means of the above-mentioned effects, the purification of which would be besides very difficult, and even impracticable. Even after the plague, all the houses at Moscow were not purified, but only those in which sick were known to have been, or of which the inhabitants were dead.

7th. Even supposing that (which, however, is only conjecture) the Cholera Morbus was effectually propagated by merchandize brought from the fair of Nijni-Novgorod, it would result, as this merchandize has been spread not only in Moscow, but as far as St. Petersburg, and a number of other towns, and in great part distributed to the consumer, either that the contagion did not exist in the merchandize at Moscow more than

at St. Petersburg, or that it is necessary to purify St. Petersburg, and the other towns which have received the merchandize from the fair of Nijni-Novgorod, in the same manner as the city of Moscow would be purified.

8th. But even if, without attending either to the evidence of the proofs which establish the impossibility of contagion by merchandize, or to the want of accurate observations, which might serve to establish the contrary, it should be decided through excess of precaution to purify all the merchandize in Moscow, this measure would not be the less followed by consequences which demand all the attention of Government. The alteration of the colours and of the lustre of the merchandize would produce a sensible diminution in their value, and the loss of considerable capitals; trade would for a long time stand still, many establishments of industry would be ruined, and thousands whose livelihood depends upon the manufactories would be reduced to a frightful state of misery.

9th. From these considerations, the committee have concluded, in conformity with the order of his Majesty the Emperor, of the 25th of August last, that it is not necessary to subject the merchandize to fumigation in those places where the Cholera Morbus has existed.

The report of the Committee has been submitted by supreme order to the examination of the council of ministers, which has judged the conclusions to be founded upon evident facts, and has ordered them to be printed and transmitted to all the Governments, to tranquillize men's minds; which order has received the confirmation of his Majesty the Emperor.

No. XXV.

Report of Dr. Albers, a Prussian Physician at the head of a Commission sent by the Prussian Government to Moscow, to ascertain the nature of the Cholera, under date of March 9 to 21, 1831.

ON the nature of the distemper, and the question which is so very important to us, in how far the Cholera is contagious, there prevails as yet the greatest diversity of opinions. Under the supposition, which we look upon as erroneous, that this question is to be decided on the facts hitherto known, which are connected with the nature of recorded infections, two parties have formed themselves—those of the contagionists and anti-contagionists; the former particularly among the authorities and physicians of St. Petersburg, and the latter among the faculty and inhabitants of Moscow, who almost all of them strenuously maintain that Cholera is not contagious. Both parties cite facts which are met with point-blank contradictions by the opposite party, whence the unprejudiced inquirer finds it as yet impossible to form a conclusive judgment. The vastness of the empire, the very unsatisfactory manner of the few reports sent in, the uncertainty of depositions, influenced frequently by personal motives, and the almost totally interrupted correspondence by letters, offer so many obstacles to inquiry, that even with the best

intention it is often only possible in part to overcome them.

When the Cholera first reached Moscow, all the physicians of this city were persuaded of its contagious nature; but the experience gained in the course of the epidemic has produced an entirely opposite conviction. They found that it was impossible for any length of time completely to isolate such a city as Moscow, containing three hundred thousand inhabitants, and having a circumference of nearly seven miles (versts?), and perceived daily the frequent frustrations of the measures adopted. During the epidemic it is certain that about forty thousand inhabitants quitted Moscow, of whom a large number never performed quarantine; and notwithstanding this fact, *no case is on record of the Cholera having been transferred from Moscow to other places*, and it is equally certain that in *no situation* appointed for quarantine *any case of Cholera has occurred*. That the distemper is not contagious has been yet more ascertained by the experience gathered in this city. In many houses it happened that one individual attacked by Cholera was attended indiscriminately by all the relatives, and yet did the disease not spread to any of the inmates. It was finally found, that not only the nurses continued free of the distemper, but also that they promiscuously attended the sick chamber, and visited their friends, without in the least communicating the disease. There are even cases fully authenticated, that nurses, to quiet timid females labouring under Cholera, have shared their beds during the nights, and that they, notwithstanding, have escaped uninjured, in the same

manner as physicians in hospitals have, without any bad consequences, made use of the warm water used a moment before by cholera patients for bathing.

These and numerous other examples, which during the epidemic (we ought, perhaps, to call it endemic) became known to every inhabitant of Moscow, have confirmed the conviction of the non-infectious nature of the disease—a conviction in which their personal safety was so much interested.

It is also highly worthy of observation, that all those who stand up for contagion *have not witnessed* the Cholera, which is therefore especially objected to their opinion by their opponents. But in the very difference of the conviction of those who have to combat the violence of the distemper, and are likely to be more impressed by the facts, and of the conviction of such persons as can observe only at a distance, and are therefore more unbiassed judges of the results, will perhaps be found materials for the solution of a question so much controverted. The same was the case on occasion of the question relative to the yellow fever. It was only after a calm examination of all the results, that it became possible to refute the error of those physicians who had collected their experience during their daily and fearless intercourse with the distemper, and had arrived at the conviction of its non-contagious nature.

In the instance of the Cholera, the question becomes more difficult of decision; because if the Cholera be at all contagious, of which I myself am not doubtful, in spite of all that is maintained here, such contagion differs from the nature of all known contagions, and

seems to approach nearest to that of the *typhus*. With whatever obstinacy the correctness of the facts is disputed by the anti-contagionists, it still appears highly probable, that the Cholera may be communicated by persons proceeding from one place to another, and may lay the foundation of a fresh epidemic, if circumstances favour the communication.

It is greatly to be lamented that neither of the contending parties is able to produce such authentic documents, and to set on foot such investigations on the spot, as would silence every contradiction; for as the state of the question now is, we must be satisfied with probabilities.

Only one point seems to be completely made out by testimonies innumerable; namely, that the Cholera is not communicated by articles of merchandize, or by any inanimate objects. This principle, as I have already had the honour of reporting some time ago, has been adopted by the public authorities of St. Petersburg, and been acted upon now for nearly three months, without any sinister consequence having ensued. The only quarantine establishment still kept up is between Moscow and St. Petersburg; every traveller, after staying there for a fortnight, may proceed without further detention; all mercantile commodities and effects pass without being stopped.

On our journey hither, we met many thousands of sledges loaded with goods, going from Moscow to St. Petersburg. As the rates paid for the carriage are extremely reasonable, any stoppage in their conveyance would prejudice the merchant: hence the carriers, as I

myself saw, proceed no further than the barriers of the quarantine establishment, and remain there, as far as their persons are concerned, and their sledges alone pass through, which, being met on the other side by their partners or servants, are taken on without hinderance. The result of my own daily experience, therefore, perfectly agrees with the above stated principle ; namely, notwithstanding all my inquiries, *I have met with no instance which could render it at all probable that the Cholera is disseminated by inanimate objects.*

No. XXVI.

*Account of the Appearances after Death observed at
Moscow. Drawn up by Dr. Keir, of Moscow.*

THE extremities in general were more or less livid and contracted, and the skin of the hands and feet corrugated; the features sunk and ghastly. On opening the skull, the blood-vessels of the brain and its membranes were more or less tinged with blood, particularly towards the base. The arachnoidea had sometimes in several places lost its transparency, and adhered to the pia mater. A fluid was sometimes found effused into the convolutions of the brain in some quantity, and more or less of serum in the lateral ventricles. The blood-vessels of the vertebral column and spinal chord more or less loaded with blood, which was sometimes effused between its arachnoid and dura mater: partial softening of the substance of the spinal chord was sometimes met with, and marks of inflammatory congestion in the larger nerves. The lungs were generally gorged with dark-coloured blood; the cavities of the heart were filled with the same, and frequently containing polypous concretions. In all the dissections I was present at, very dark-coloured blood, which, when extended on a white surface, resembled the colour of the darkest cherry, was found in the arch of the aorta, and in other arteries. The state of the abdominal organs varied

considerably; the stomach and different parts of the intestines were frequently found to be partially, but considerably contracted; the internal surface of the stomach sometimes seemed to be little affected; a whitish or yellow fluid matter, resembling the evacuations, was frequently found in different parts of the alimentary canal, which now and then contained a good deal of air; in other cases, both stomach and intestines bore marks of congestion and a subinflammatory state, varying from dark-coloured spots of small extent to several inches, affecting the whole internal circumference of the intestine: the colour of these parts also varied a good deal from dark-coloured venous congestion to light rose-coloured inflammation. In one case the internal surface of the stomach was so strongly and so generally tinged of a very dark colour, that it might easily have been mistaken for gangrene. On exposing the stomach between the eye and the light, it was evident that there was neither gangrene nor solution of continuity, but that the dark colour proceeded from a very general and great congestion of very dark-coloured blood in the vessels of the organ. The subject of this case, I was told, had died with symptoms of a typhoid nature, after suffering from the usual symptoms of the epidemic. Excepting in this case, which was evidently one of congestion, and not of inflammation, I saw nothing in the morbid appearances from which a conclusion could be drawn that inflammation was a very general morbid change in the alimentary canal, or a common cause of death, however by its presence in the second period of the disease it might

add to the general irritation, or even, as a consequence of preceding congestion, be itself occasionally the cause of the fatal event. Both stomach and bowels were frequently of a paler colour than natural, both on the outer and inner surface; but neither thickening nor condensation from inflammation, nor exulceration, destruction of substance, nor abscess, appeared in any of the dissections at which I was present. The liver was generally pretty full of dark-coloured blood; the gall-bladder frequently much distended with tenacious, ropy bile, of a dark yellow or green colour; the gall ducts sometimes contracted, at other times not; the appearance of the pancreas, spleen, and kidneys, was various, frequently differing but little from their natural state, in other cases rather surcharged with blood; the urinary bladder almost always collapsed and empty; the uterus generally natural.

No. XXVII.

*Chronological Table of the principal Attacks of the
Spasmodic Cholera,*

DRAWN UP BY MORREAU DE JONNÈS.

HINDOSTAN.

1. BENGAL, OR PRESIDENCY OF CALCUTTA.

1817.	Malda.	Sangor.
Jessore.	Baughulpore.	Ougein.
Dacca.	Chupra.	Nusingha.
Nusseerabad.	Moozufferpore.	Putthoorea.
Patna.	Monghyr.	Kytah.
Sunergong.	Buxar.	Mundelah.
Dinapore.	Ghazeepore.	Jubbulpore.
Chittagong.	Camp of Sind.	Muhedpore
Calcutta.	Jaggrenah.	Lucknow.
Nuddea.	Benares.	Allahabad.
Nuraingunge.	Cuttack.	Shajehanpore.
Kishnagur.	Tirhoot.	Etawah.
Sylhet.	Moorshedabad.	Futtyghur.
Poornea.	Sheergur.	Coel.
Dinagepore.	1818.	Cawnpore.
Balassore.	Calcutta.	Nujufgur.
Burrisaul.	Banda.	Bethoor.
Burdwan.	Hutta.	Agra.
Rungpore.	Logargoan.	Muttra.

Delhi.	Camp of Titirya.	1820.
Camp of Hansi.	——— Oude.	Calcutta.
——— Oonchara.	1819.	Jessore.
Saharunpore	Calcutta.	Dacca.
Tirhoot.	Camp of Asseer-	Moorshedabad.
Chuprah.	ghur.	Midnapore.
Gorrukpore.	Midnapore.	Sylhet.
Catmandoo (Ne-	Ishra.	Jaulnah.
paul).	Husseinabad.	Jelapore.
Patun.	Cawnpore.	Dinapore.
Bhatgoun.	Rampoura.	1821.
Bilsa.	Mundessore.	Gorrukpore
Bhopal.	Jaragurth.	Cawnpore.
Banpora.	Neemuch.	Lucknow.
Sultanpore.	Nusseerabad.	Nagpore.
Benares.	Muttra.	Camp of the Ner-
Fizabad.	Camp of the Ner-	budda.
Oude.	budda.	Chittagong.
Jeypore.	Sangor.	Futtyghur.
Hissar.	Agra.	Chowinghee.
Panniput.	Coel.	Banda.
Kurnaul.	Meerut.	Midnapore.
Tannah.	Moradabad.	Ghazepore.
Meerut.	Kurnaul.	Cuttack.
Hoshungabad.	Bareilly.	Balassore.
Mooltay.	Almorah.	Dinapore.
Gaongong.	Saharunpore.	Sangor.
Camp of Mow.	Deyra Dhoon.	Rampore.
Sonara.	Kumaroon.	Dacca.
Kotah.	Catmandoo.	Calcutta.

Jaggrenah.	Benares.	Sabathou.
1822.	Ghazeepore.	Balassore.
Jessore.	Chunar.	Kurnal.
Calcutta.	Futtyghur.	Mergunge.
Chittagong.	Myzapore.	Subulpore.
Serampore.	Jessore.	Jaypore.
1823.	Dinapore.	Rewa.
Calcutta.	Bankipore.	Sangor.
Nagpore.	Kushbad.	1828.
Kampti.	1826.	Calcutta.
Jaulnah.	Calcutta.	Cawnpore.
1824.	Benares.	Chittagong.
Calcutta.	Patna.	Almorah.
Serampore.	1827.	Kemaon.
Kampti.	Calcutta.	Gootty.
Bellary.	Paulgaucherry.	Benares.
Jaulnah.	Jubulpore.	1830.
Nagpore.	Moorshedabad.	Calcutta.
1825.	Districts near the	Jessore.
Calcutta.	Himalaya moun-	
Berhampore.	tains.	

2. COROMANDEL COAST, OR PRESIDENCY OF MADRAS.

1818.	Ellore.	Madras.
Ganjam.	Mazulipatam.	Camp of Guddok.
Chicacole.	Ongole.	Chepauk.
Aska.	Mudnore.	Saint-Thome.
Nizagapatam.	Gontour.	Poonamali.
Rajahmundry.	Nellore.	Wallahabad,

Pondicherry.	Gootty.	Jaulnah.
Cuddalore.	Cudapah.	Nagpore.
Sadras.	Tripetry.	Camp of Malli-
Combaconum.	Chittor.	gaum.
Negapatam.	Vellore.	Nusseerabad.
Tanjore.	Arcot.	Salem.
Ramnad.	Salem.	Sankerridrog.
Madura.	Sankerrydrog.	Trichinopoly.
Palamcotta.	Shawghur.	Tanjore.
Tinnevelly.	Trichinopoly.	Madura.
Nagpore.	Soonda.	Mangalore.
Hydrabad.	Mangalore.	Dingigul.
Aurangabad.	Cannamore.	Pondicherry.
Camp of Tapti.	Tellichery.	Calicut.
—— Mhow.	Warior.	Cochin.
Punderpour.	Pootoor.	Quilon.
Jaulnah.	Alleppy.	1820.
Badamy.	Guylon.	Madras.
Burwar.	Trivandrum.	Jaulnah.
Hoobly.	Hulli-hall.	Saint Thome.
Camp of the Dooab	Calicut.	Camp of Pedda-
Bellary.	Cochin.	pour.
Hurryghur.	Alepey.	—— Bochully
Chittedrog.	Quilon.	Vepery.
Banghalore.	Travancore.	Soonda.
Seringapatam.	1819.	Tinnivelly.
Mysore.	Travancore.	Palamcottah.
Coimbatore.	Palamcotta.	Gootty.
Erroda.	Nagore.	Arcot.
Carroor.	Negapatam.	Cochin.

Hyderabad.	Tutocorin.	Vellore.
Nagpore.	Wallanjabad.	Jaulnah.
Tanjore.	Madura.	Burra Sotanah.
Mangalore.	Trichinopoly.	Kilpaulk.
Cannamore.	Kalludgi.	Saint Thome.
Tellichery.	Vellore.	Wallagahbad
1821.	Madras.	Camp of Baugre-
Cuddalore.	Palamcotta.	cottah.
Royacottah.	Bangalore:	Madras.
Kulladji.	Secunderabad.	1825.—1826.
Durward.	Cochin.	<i>Intermittences.</i>
Salem.	Arcot.	1827.
Sankerridrog.	Calicut.	Jaulnah.
Madura.	Tellichery.	Madras.
Madras.	Mangalore.	Hyderabad.
Pondicherry.	1823.	Nusseerabad.
Belgaum.	Bangalore.	1828.
Badamy.	Kulladgi.	Madras.
Shapoor.	Chingleput.	Palamcotta.
Trichinopoly.	Poonamalli.	Wallagahbad.
Bellary.	Vepery.	Trichinopoly.
Saint Thome.	Saint Thome.	Vepery.
Jaulnah.	Cuddalore.	1829.
Camp of Venket-	Trichinopoly.	Madras.
tagurry.	Arcot.	Madura.
Hyderabad.	Camp of Tindera-	Verdaputty.
Nagpore.	num.	Royapettah.
1822.	Madras.	1830.
Salem.	1824.	Jaulnah.
Samulcottah.	Nagpore.	

3. COAST OF MALABAR, OR PRESIDENCY OF BOMBAY.

1818.	Mullegaum.	Colapore.
Amednagur.	Dungary.	Damaun.
Panwell.	Camathy.	Kattywar.
Salsette.	Salsette.	Mandavie.
Bombay.	1821.	Indore.
Surat.	Bombay.	Mow.
Poonah.	Baroda.	Cutch.
Serror.	Salsette.	1826.
Bassein.	Poonah.	Mhow.
Bellapore.	Seroor.	Amedabad.
Bancoote.	Surat.	1827.
Collapore.	1822.	Bombay.
1819.	Bombay.	1828.
Bombay.	1823.	Bombay.
Phedra.	Bombay.	Poonah.
Rozetrah.	1824.	1829.
Camp of Puchau.	Arsenal of Bycul-	Bombay.
—— Seroor.	lah.	1830.
Kaira.	Bombay.	Bombay.
Rasore.	1825.	Poonah.
Goa.	Bombay.	Demaun.
1820.	Surat.	Coluk.
Bombay.	Belgaum.	

EASTERN ASIA.

1818.	1819.
Burmese Empire.	Isle of Penang.
Kingdom of Arracan.	Sumatra, town of Achem.
Peninsula of Malacca.	Singapore.

Kingdom of Siam, Bankok	1822.
Ceylon: Colombo, Kandy. Philippines, Manilla.	
Malacca.	Cochinchina.
1820.	Tonkin.
Tonquin.	Pekin, China.
Cambodia. Saigon.	1823.
Cochinchina.	Macao, China.
Southern China.	Moluccas.
Port of Canton, China.	Amboyna.
Philippines, Manilla.	Macassar.
Penang.	Northern China.
Singapore.	Pekin.
1821.	Nankin.
Isle of Java.	Kukuchoton.
Batavia.	Assam, Burmese Empire.
Samarang.	Rangoon, ditto.
Sourabaya.	Borneo, Pontianah.
Bantam.	1824.
Joanna.	Northern China.
Kandal.	1825.
Japara.	Arracan.
Madura.	Burmese Empire.
Damak.	1827.
Borneo.	Lahore.
	Chinese Tartary.

ISLANDS OF THE AFRICAN OCEAN.

	1819.
Isle of France,	Isle of Bourbon.

ARABIA AND PERSIA.

	1821.	Erivan.
July.	Muscat, Arabia.	Kars.
	Ormus. } Persian	Erzeroum, Turkey.
	Kishme. } Gulf.	1823.
Aug.	Bahrein, Arabia.	June. Old Shumalin,
	Bender-Abassi, Persia	Georgia.
Sept.	Shiraz.	Saillan.
	Yerd.	1829.
Oct.	Ispahan.	Teheran, Persia.
	1822.	Fehrabab.
July.	Cashan, Persia.	1830.
	Khom.	May. Teheran.
	Casbin.	Resht.
	Kermanshah.	Zinzili.
Sept.	Tauris.	June. Tauris.
	Khog.	

MESOPOTAMIA, SYRIA, AND JUDEA.

	1821.	Antab.
July.	Bussorah, Mesopotamia.	Nov. Aleppo, Syria.
	Bagdad.	1823.
	Annah.	Tripoli.
Nov.	1822.	June. Tortosa.
July.	Moussoul.	Lataquia.
	Medina.	Gesra.
	Diarbekir.	Antioch.
	Orfa.	July. Suedie.
	Biri.	Sarkin.
		Arsous.

Aug. Khankaramout.	Hamah.
Alexandretta.	Homs.
Adena.	Oct. Damir.
Tarsous.	1824.
Meserib.	Jan. Tiberiad.
Famieh.	

RUSSIA.

	1823.	Kuban, N.-Georg.
	Saillan, Ghilan.	Talycht, <i>ib.</i>
	Orenburg.	July. Derbent, gov. of
Sept.	Astracan.	Caucasus.
	1828.	Tarkou, <i>ib.</i>
	Orenburg.	Kisgar, <i>ib.</i>
	Fort of Rassyp- July 27.	Ganga, NewGeor-
	naya.	gia.
	Fort of Isetsk.	Tzet, <i>ib.</i>
	1829.	20. Teflis, <i>ib.</i>
Sept.	Orenburg.	Akalsike, <i>ib.</i>
	Fort Roulaghinsk	Szerdrin. <i>ib.</i>
	Fort Kolminskoff.	20. Astracan, gov. of
	Fort Malo-Bon-	Caucasus.
	goulmich.	26. Gourieff, <i>ib.</i>
	1830.	District of Tcher-
June.	Salian.	noiarsk.
	Astara.	— of the Ou-
	Shirvan.	lous, <i>ib.</i>
June 15.	Bakou, NewGeor-	— Erketeneff, <i>ib.</i>
	gia.	Yenotaywsk, <i>ib.</i>
	Chemaki, <i>ib.</i>	22. Krasnoyark, <i>ib.</i>

July 25.	Tsariassin.	Petrowka.
Aug. 9.	Seliternoi, gov. of Caucasus.	Tourbanka. Susdal
Aug.	Donskaïa, Don Cossacks.	Sept. 3. Kostrama, gov. 12. Jaroslaw, gov.
	Saratof, gov.	11. Ribinsk.
	Jaïk or Ourals.	20. Wologda, gov.
	Penza, gov.	Sept. Ekatherinoslaf, gov.
	Mokszansk.	Izum.
	Tsembar.	Kharkof, gov.
	Saransk.	P. of Northern
	Gorodinisk.	Cossacks.
Sept.	Tambof, gov.	Novotcharkos.
	Woronetz, <i>ib.</i>	Bielogorod.
	Riazantaraya,	Karpow.
Sept. 28.	Moscow, gov.	Obojansk.
	Twer, <i>ib.</i>	Oct. 30. Koursk, gov.
	Pskoff, <i>ib.</i>	Poltawa.
Oct.	Wladimir, <i>ib.</i>	Krementchoug.
	Mourom, <i>ib.</i>	Tcherk, Russia.
	Syzram, gov. of Sept.	Azof.
	Simbirsk.	Rostock.
	Samara, <i>ib.</i>	Oct. 14. Taganrog.
	Stravropol, <i>ib.</i>	Sebastopol, Cri-
	Simbirsk, gov.	mea.
	Kazan, <i>ib.</i>	Kerson.
	Laischeff, <i>ib.</i>	Nicolajeff.
Aug. 27.	Nijni-Novogorod, gov.	Odessa.
	Pavlovo.	Bender.
	Klutchers.	

Oct.	Nogay Tartars.		Novorod Volinsk,
	Aleski.		Volhynia.
	Ovidiopole.		Ostrog, <i>ib.</i>
	Theodosia.	Feb.	Kamenetz, Po-
	Akkerman.		dolia.
Dec. 8.	Kischeneff, Bes-		Bratzlaff.
	sarabia.		Mohileff.
	Falschi, Moldavia.		Winitzy.
Sept.	Ukraine, gov.		Letticheff.
	Novogorod, <i>ib.</i>		Ouschitza.
Oct. 28.	Kiew, <i>ib.</i>	March.	Ustuskno.
Nov.	Volhynia, gov.	April.	Kief, gov.
	Podolia, <i>ib.</i>		Poltawa, <i>ib.</i>
Dec.	Berditcheff, Vol-		Podolia, <i>ib.</i>
	hynia.		Volhynia, <i>ib.</i>
	1831.		Grodno, <i>ib.</i>
Jan.	Zitomir, <i>ib.</i>		Wilna, <i>ib.</i>
	Zastaff, <i>ib.</i>	May.	Polangen.
	Luck, <i>ib.</i>		Riga, gov.
	Starekonstanti-		Liebau.
	noff, <i>ib.</i>		

POLAND.

	1831.	April 14.	Warsaw.
March.	Horoda.	May.	Ostrolenka.
	Lublin.		Lomza.
	Rawa.		Szczuczyn.
April.	Siedlec.		Drohiczyn
	Iganie.		Ciechanowiec.
	Praga.		Pultusk.

May.	Makow.	May.	Biala.
	Nesielskal.		Opatow.
	Plonsk.		Bielsk.
	Warka.		Neustadt.
	Lowiecz.		Hielce.
	Kalitch.		Sluzewo.
	Augustowo.		Lenczye.
	Marianpol.		Opoczno.
	Sawalki.		Byalistock.
	Wilkowski.		Kielce.
	Random.		

PRUSSIA.

May. Dantzig.

AUSTRIA.

May.	Brody, Galicia.	Lemberg, &c.
	Tarnopol.	

RUSSIA.

June 26. St. Petersburg. July 1. Cronstadt.

THE END.

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